

**FELTRO AGUGLIATO POLIESTERE 500 GR.  
FH IGNIFUGO**

**3150FH**

<b>Fibre</b> / fibers / faserauflage / nappe	<b>POLYESTER</b>	
<b>Tessuto</b> / fabric / gewebe / tissu	<b>POLYESTER</b>	
<b>Peso</b> / weight / gewicht / poids	<b>g/m2</b>	<b>500</b>
<b>Permeabilità all'aria</b> / air permeability / luftdurchlässigkeit / perméabilité à l'air	<b>l/dm2/min (20 mm. C.A.)</b>	<b>160</b>
<b>Spessore</b> / thickness / dicke / épaisseur	<b>mm</b>	<b>1,70</b>
<b>Densità</b> / density / dichte / densité	<b>g/cm3</b>	<b>0,29</b>
<b>Volume dei pori</b> / void volume / porenvolumen / volume de pores	<b>79%</b>	
<b>Resistenza alla rottura</b> / tensile strength / reißkraft / résistance à la rupture		
<b>longitudinale</b> / lenghtwise / längs / en longueur	<b>da N/5cm</b>	<b>130</b>
<b>trasversale</b> / crosswise / quer / en travers	<b>da N/5cm</b>	<b>150</b>
<b>Allungamento alla rottura</b> / elongation at break / reißdehnung / allongement à la rupture		
<b>longitudinale</b> / lenghtwise / längs / en longueur	<b>22%</b>	
<b>trasversale</b> / crosswise / quer / en travers	<b>23%</b>	
<b>Resistenza alla temperatura (secca)</b> / temperature resistance (dry) / Temperaturbeständigkeit bei Trockenhitze / résistance à la tempé- rature (sèche)		
<b>Temperatura di esercizio</b> / operating temperature / dauerbelastung / température de travail	<b>150° C</b>	
<b>Brevi punte</b> / short peaks / kurzzeitbelastung / brèves pointes	<b>160° C</b>	

**FH** **Trattamento ritardante alla fiamma** / traitement retardant à la flamme / flame retardent treatment  
/ flammhemmend ausgerüstet

I dati tecnici sono stati determinati secondo le norme DIN. Le informazioni tecniche suelencate sono indicative e soggette a modifiche.

## Air filters by filter classes

		Filter application		Particulate air filters for general ventilation							EPA, HEPA and ULPA													
		Test		EN 779:2012 evaluation of filter performance at 0,944 m³/s (or nominal flow)							EN 1822:2011 (Part 1 to 5) Evaluation of filter performance by nominal flow													
		Suitable for	Group designation	Filter classes	Test dust / aerosol	Final pressure drop in Pa	Average arrestance (A <sub>m</sub> ) compared with test dust in %	Average efficiency (E <sub>m</sub> ) for particles of 0.4 microns in %	Minimum efficiency for particles 0.4 microns in %	Previous: DIN EN 779:2003 (Predecessor: DIN 24185)	Filter classes	Test dust	Integral value of separation in the MPPS in %	Integral value of transmittance in the MPPS in %	Local value of separation in the MPPS in %	Local value of transmittance in the MPPS in %	Previous: DIN EN 1822:1998 (Predecessor DIN 24184)							
		2 <sup>nd</sup> filter stage (fine filtration)	1 <sup>st</sup> filter stage (prefiltration)	Coarse dust	G	G 1	ASHRAE dust (72% fine test dust ISO 12103-1:1997 A2 23% carbon black and 5% cotton linters)	250	50 ≤ A <sub>m</sub> < 65		-	G 1												
G 2	250					65 ≤ A <sub>m</sub> < 80			-	G 2														
G 3	250					80 ≤ A <sub>m</sub> < 90			-	G 3														
G 4	250					90 ≤ A <sub>m</sub>			-	G 4														
Fine dust	M		DEHS (Di-Ethyl-Hexyl-Sebacate) 0.2–3.0 µm	M 5	450	-	40 ≤ E <sub>m</sub> < 60	-	F 5															
				M 6	450	-	60 ≤ E <sub>m</sub> < 80	-	F 6															
	F			F 7	450	-	80 ≤ E <sub>m</sub> < 90	35	F 7															
				F 8	450	-	90 ≤ E <sub>m</sub> < 95	55	F 8															
				F 9	450	-	95 ≤ E <sub>m</sub>	75	F 9															
3 <sup>rd</sup> filter stage (final filtration)	Suspended dust		E	EPA: Efficient Particulate Air filter							E 10	DEHS (Di-Ethyl-Hexyl-Sebacate) MPPS 0.1–0.3 µm								≥ 85	≤ 15	-	-	H 10
											E 11									≥ 95	≤ 5	-	-	H 11
											E 12									≥ 99.5	≤ 0.5	-	-	H 12
		H	HEPA: High Efficiency Particulate Air filter							H 13	≥ 99.95		≤ 0.05	≥ 99.75	≤ 0.25	H 13								
										H 14	≥ 99.995		≤ 0.005	≥ 99.975	≤ 0.025	H 14								
		U	ULPA: Ultra Low Penetration Air filter							U 15	≥ 99.9995		≤ 0.0005	≥ 99.9975	≤ 0.0025	U 15								
										U 16	≥ 99.99995		≤ 0.00005	≥ 99.99975	≤ 0.00025	U 16								
U 17	≥ 99.999995	≤ 0.000005	≥ 99.9999	≤ 0.0001	U 17																			

Datum/Date: 16.10.2008 Tob/Sol

## PRÜFZEUGNIS TEST CERTIFICATE

Nr./No.: 200823300/6210

- |          |                                                  |                                                                                                                                                   |
|----------|--------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1</b> | <b>Auftraggeber/<br/>Customer</b>                | Johns Manville Sales GmbH<br>Max-Fischer-Str. 11<br>86399 Bobingen                                                                                |
| <b>2</b> | <b>Prüfmuster/<br/>Test specimen</b>             | Filtermaterial                                                                                                                                    |
| 2.1      | Hersteller/<br>Manufacturer                      | Johns Manville Sales GmbH                                                                                                                         |
| 2.2      | Bauart, Bezeichnung/<br>Type, designation        | Filtermaterial 1-lagig / JM Spunbond CombiFil 478/170 AS                                                                                          |
|          | Kennzeichnung/<br>Marking                        | JM CombiFil® AS Polyester Spunbond Type 478/170, aluminized                                                                                       |
| 2.3      | Bestimmungsgemäße<br>Verwendung/<br>Intended use | Entsprechend den BGIA-Grundsätzen zur Prüfung von Filtern für<br>die Verwendung in staubbeseitigenden Maschinen und Geräten<br>(Ausgabe 10/2008). |
| 2.4      | Datum der Herstellung/<br>Date of fabrication    | 08/2008                                                                                                                                           |
| 2.5      | Weitere Angaben/<br>Further details              | s. Prüfprotokoll                                                                                                                                  |

**3 Prüfung/  
Testing**

- 3.1 Art der Prüfung/  
Type of test Typprüfung
- 3.2 Datum der Prüfung/  
Date of testing Oktober 2008
- 3.3 Prüfverfahren, -grundlagen/  
Test method, requirements DIN EN 60335-2-69:2008; BGIA-Grundsätze zur Prüfung von Filtern für die Verwendung in staubbeseitigenden Maschinen und Geräten (Ausgabe 10/2008).

**4 Beurteilung, Eignung/  
Assessment, suitability  
(Besondere Hinweise/  
Special remarks)**

Das Filtermaterial JM Spunbond CombiFil 478/170 AS erfüllt bei einer Filterflächenbelastung von  $200 \text{ m}^3/\text{m}^2 \cdot \text{h}$  entsprechend einer Filteranströmgeschwindigkeit von  $0,056 \text{ m/s}$  die Anforderungen der DIN EN 60335-2-69 an Filter zum Einsatz in staubbeseitigenden Maschinen und Geräten der Staubklasse "M".

**Besondere Hinweise:**

Dieses Prüfzeugnis gilt nur für das Filtermaterial mit der Anströmseite: weiße Seite.

Eine Beurteilung der Arbeitssicherheit der gesamten Staubabscheideeinrichtung ist auf Grund dieses Prüfzeugnisses nicht zulässig.

**5 Gültigkeit des Prüfzeugnisses/  
Validity of Test Certificate**

Dieses Prüfzeugnis gilt, solange die zugrundeliegenden sicherheitstechnischen Anforderungen (3.3) gelten, für alle mit dem Prüfmuster identischen Erzeugnisse, die gefertigt werden bis zum:

*As long as the underlying safety-technical requirements (3.3) are in force, the present Test Certificate applies to all products equal to the test specimen and manufactured at the latest on:*

01.11.2011

Die Identität der Erzeugnisse mit dem Prüfmuster wird von der Prüfstelle nicht überwacht.  
*Conformity with the test specimen will not be verified by the testing institute.*

Eine Verlängerung der Gültigkeitsdauer ist auf Antrag möglich (**bis zu zweimal**).  
*Period of validity may be extended upon request.*

Verlängerung der Gültigkeit bis: 01.11.2014

E.Nr. 201123245/6210 /St.. Augustin, 14.02.2012

Verantwortlicher Prüfer



Dipl.-Ing. Hans-Ulrich Tobys

6 Allgemeine Hinweise/  
General remarks

Dieses Prüfzeugnis besteht aus  
The present Test Certificate consists of

5

Seiten  
Pages.

Die Seiten 1 bis 3 enthalten das Gesamtergebnis der Prüfung, sie dürfen nur ungekürzt veröffentlicht werden. Zum vollständigen Prüfzeugnis gehört das Prüfprotokoll, aus dem die Einzelangaben ersichtlich sind.

Pages 1 to 3 indicate the overall test result; they shall only be published with the full wording being quoted. The complete Test Certificate also includes the test protocol containing all pertinent details.

Dieses Prüfzeugnis berechtigt **n i c h t** zur Verwendung des GS-Zeichens, BG-Zeichens oder CE-Zeichens.

The present Test Certificate does **n o t** warrant the use of the GS-label, BG-label or CE-mark.

Im übrigen gilt die Prüf- und Zertifizierungsordnung der Prüf- und Zertifizierungsstellen im BG-PRÜFZERT in Verbindung mit den Allgemeinen Geschäftsbedingungen der Deutschen Gesetzlichen Unfallversicherung e.V.

In all other respects the Rules of Procedure for Testing and Certification carried out by the Test and Certification Bodies in BG-PRÜFZERT shall apply in conjunction with the General Business Conditions of the Deutsche Gesetzliche Unfallversicherung e.V.

Für die Beurteilung:  
For the assessment:

Für die Prüfung:  
For the testing:

Dipl.-Ing. Hans-Ulrich Tobys

Fachzertifizierer(in)  
Certification officer

Christian Sollik

Leiter(in) des Prüflabors  
Head of Testlaboratory

## Prüfprotokoll Test protocol

1. **Prüfgrundlage:** DIN EN 60335-2-69:2008; BGIA-Grundsätze zur Prüfung von Filtern für die Verwendung in staubbeseitigenden Maschinen und Geräten (Ausgabe 10/2008).
2. **Art der Prüfung:** Typprüfung
3. **Antragsteller:** Johns Manville Sales GmbH
4. **Prüfmuster:** Filtermaterial
  - 4.1 Bauart: Filtermaterial 1-lagig
  - 4.2 Bezeichnung: JM Spunbond CombiFil 478/170 AS
  - 4.3 Kennzeichnung: JM CombiFil® AS Polyester Spunbond Type 478/170, aluminized
5. **Staubklasse:** "M"
6. **Herstellerangaben Filtermaterial**
  - 6.1 Material und Art: Vliesstoff aus PES-Filamenten mit Alu-Bedampfung
  - 6.2 Flächengewicht: 170 g/m<sup>2</sup>
  - 6.3 Luftdurchlässigkeit: ./.
  - 6.4 Anströmseite: weiße Seite
  - 6.5 Farbe: silberfarbig mit weißer Anströmseite
7. **Durchlassgradprüfung Filtermaterial**
  - 7.1 Filterflächenbelastung: 200 m<sup>3</sup>/m<sup>2</sup>·h
  - 7.2 Anströmgeschwindigkeit: 0,056 m/s
  - 7.3 Anforderung Staubklasse "M"  
Maximal zulässiger Durchlassgrad: < 0,10 %

#### 7.4 Prüfergebnisse

Mittlerer Durchlassgrad: 0,06 % (sechs Messungen)

Standardabweichung: 0,01 %

Bei einer Filterflächenbelastung von  $200 \text{ m}^3/\text{m}^2 \cdot \text{h}$  entsprechend einer Filteranströmgeschwindigkeit von 0,056 m/s ist der Durchlassgrad sicher  $< 0,10 \%$  (s. Pkt. 5 der Grundsätze zur Prüfung).

Die Anforderungen an die Filtermaterialabscheideleistung der Staubklasse "M" werden erfüllt.

#### 8. Durchflusswiderstand

Der Durchflusswiderstand des Filtermaterials wird vor der Quarzstaubprüfung ermittelt.

8.1 Filterflächenbelastung:  $200 \text{ m}^3/\text{m}^2 \cdot \text{h}$

8.2 Anströmgeschwindigkeit: 0,056 m/s

#### 8.3 Prüfergebnis

Mittlerer Durchflusswiderstand: 74 Pa (6 Messungen)

9. Luftdurchlässigkeitsprüfung:  $550 \text{ m}^3/\text{m}^2 \cdot \text{h}$

Die Luftdurchlässigkeit des Filtermaterials wird bei einem Differenzdruck von 200 Pa vor der Quarzstaubprüfung ermittelt.

10. Flächengewichtsprüfung:  $170 \text{ g}/\text{m}^2$

#### 11. Kennzeichnung

Die Anforderungen werden erfüllt.

Institut für Arbeitsschutz – BGIA –  
Im Auftrag

Christian Sollik

Datum/Date: 20.07.2012 Tob/Sol

# PRÜFZEUGNIS TEST CERTIFICATE

Nr./No.: 201224148/6210

- |          |                                                  |                                                                                                                                                  |
|----------|--------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1</b> | <b>Auftraggeber/<br/>Customer</b>                | Johns Manville Sales GmbH<br>Max-Fischer-Str. 11<br>86399 Bobingen                                                                               |
| <b>2</b> | <b>Prüfmuster/<br/>Test specimen</b>             | Filtermaterial                                                                                                                                   |
| 2.1      | Hersteller/<br>Manufacturer                      | Johns Manville Sales GmbH                                                                                                                        |
| 2.2      | Bauart, Bezeichnung/<br>Type, designation        | Filtermaterial 1-lagig / JM Evalith™ AS 478/235                                                                                                  |
|          | Kennzeichnung/<br>Marking                        | Evalith™ Polyester Spunbond Type 478/235 AS                                                                                                      |
| 2.3      | Bestimmungsgemäße<br>Verwendung/<br>Intended use | Entsprechend den IFA-Grundsätzen zur Prüfung von Filtern für<br>die Verwendung in staubbeseitigenden Maschinen und Geräten<br>(Ausgabe 01/2010). |
| 2.4      | Datum der Herstellung/<br>Date of fabrication    | 09/2006                                                                                                                                          |
| 2.5      | Weitere Angaben/<br>Further details              | s. Prüfprotokoll                                                                                                                                 |



### 3 Prüfung/ Testing

- 3.1 Art der Prüfung/  
Type of test Typprüfung
- 3.2 Datum der Prüfung/  
Date of testing November 2006
- 3.3 Prüfverfahren, -grundlagen/  
Test method, requirements DIN EN 60335-2-69:2008; IFA-Grundsätze zur Prüfung von Filtern für die Verwendung in staubbeseitigenden Maschinen und Geräten (Ausgabe 01/2010).

### 4 Beurteilung, Eignung/ Assessment, suitability (Besondere Hinweise/ Special remarks)

Das Filtermaterial JM Evalith™ AS 478/235 erfüllt bei einer Filterflächenbelastung von 200 m<sup>3</sup>/m<sup>2</sup>·h entsprechend einer Filteranströmgeschwindigkeit von 0,056 m/s die Anforderungen der DIN EN 60335-2-69 an Filter zum Einsatz in staubbeseitigenden Maschinen und Geräten der Staubklasse "M".

#### Besondere Hinweise:

Laut Antragsteller wurde die Bezeichnung des Filtermaterials von JM CombiFill AS 478/235 in JM Evalith™ AS 478/235 geändert.

Im Prüfprotokoll sind die Prüfergebnisse der Typprüfung für das Filtermaterial JM CombiFil 478/235 aufgeführt.

Dieses Prüfzeugnis gilt nur für das Filtermaterial mit der Anströmseite: Aluminium bedampfte Seite.

Eine Beurteilung der Arbeitssicherheit der gesamten Staubabscheideeinrichtung ist auf Grund dieses Prüfzeugnisses nicht zulässig.

Dieses Prüfzeugnis ersetzt das Prüfzeugnis 200623452/6210.

### 5 Gültigkeit des Prüfzeugnisses/ Validity of Test Certificate

Dieses Prüfzeugnis gilt, solange die zugrundeliegenden sicherheitstechnischen Anforderungen (3.3) gelten, für alle mit dem Prüfmuster identischen Erzeugnisse, die gefertigt werden bis zum:

*As long as the underlying safety-technical requirements (3.3) are in force, the present Test Certificate applies to all products equal to the test specimen and manufactured at the latest on:*

**01.12.2012**

Die Identität der Erzeugnisse mit dem Prüfmuster wird von der Prüfstelle nicht überwacht.  
*Conformity with the test specimen will not be verified by the testing institute.*

~~Eine Verlängerung der Gültigkeitsdauer ist auf Antrag möglich (einmalig).~~  
~~Period of validity may be extended upon request.~~

Verlängerung der Gültigkeit bis : **01.12.2015**

E.Nr. 201225413/6210 /St.. Augustin, 16.11.2012

Verantwortlicher Prüfer



Dipl.-Ing. Hans-Ulrich Tobys

**6 Allgemeine Hinweise/  
General remarks**

Dieses Prüfzeugnis besteht aus  
*The present Test Certificate consists of*

5

Seiten  
*Pages.*

Die Seiten 1 bis 3 enthalten das Gesamtergebnis der Prüfung, sie dürfen nur ungekürzt veröffentlicht werden. Zum vollständigen Prüfzeugnis gehört das Prüfprotokoll, aus dem die Einzelangaben ersichtlich sind.

*Pages 1 to 3 indicate the overall test result; they shall only be published with the full wording being quoted. The complete Test Certificate also includes the test protocol containing all pertinent details.*

Dieses Prüfzeugnis berechtigt **n i c h t** zur Verwendung des GS-Zeichens, BG-Zeichens oder CE-Zeichens.

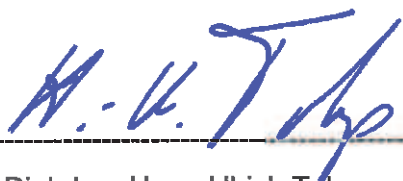
*The present Test Certificate does n o t warrant the use of the GS-label, BG-label or CE-mark.*

Im übrigen gilt die Prüf- und Zertifizierungsordnung der Prüf- und Zertifizierungsstellen im BG-PRÜFZERT in Verbindung mit den Allgemeinen Geschäftsbedingungen der Deutschen Gesetzlichen Unfallversicherung e.V.

*In all other respects the Rules of Procedure for Testing and Certification carried out by the Test and Certification Bodies in BG-PRÜFZERT shall apply in conjunction with the General Business Conditions of the Deutsche Gesetzliche Unfallversicherung e.V.*

Für die Beurteilung:  
*For the assessment:*

Für die Prüfung:  
*For the testing:*



Dipl.-Ing. Hans-Ulrich Tobys

Fachzertifizierer(in)  
*Certification officer*



Christian Sollik

Leiter(in) des Prüflabors  
*Head of Testlaboratory*

## Prüfprotokoll Test protocol

1. **Prüfgrundlage:** DIN EN 60335-2-69:2008; IFA-Grundsätze zur Prüfung von Filtern für die Verwendung in staubbeseitigenden Maschinen und Geräten (Ausgabe 01/2010).
2. **Art der Prüfung:** Typprüfung
3. **Antragsteller:** Johns Manville Sales GmbH
4. **Prüfmuster:** Filtermaterial
  - 4.1 **Bauart:** Filtermaterial 1-lagig
  - 4.2 **Bezeichnung:** JM Evalith™ AS 478/235
  - 4.3 **Kennzeichnung:** Evalith™ Polyester Spunbond Type 478/235 AS
5. **Staubklasse:** "M"
6. **Herstellerangaben Filtermaterial**
  - 6.1 **Material und Art:** Vliesstoff aus PES-Filamenten mit Alu-Bedampfung
  - 6.2 **Flächengewicht:** 235 g/m<sup>2</sup>
  - 6.3 **Luftdurchlässigkeit:** 650 m<sup>3</sup>/m<sup>2</sup>·h bei 200 Pa
  - 6.4 **Anströmseite:** Aluminium bedampfte Seite
  - 6.5 **Farbe:** weiß mit silberfarbiger Anströmseite
7. **Durchlassgradprüfung Filtermaterial**
  - 7.1 **Filterflächenbelastung:** 200 m<sup>3</sup>/m<sup>2</sup>·h
  - 7.2 **Anströmgeschwindigkeit:** 0,056 m/s
  - 7.3 **Anforderung Staubklasse "M"**  
Maximal zulässiger Durchlassgrad: < 0,10 %

#### 7.4 Prüfergebnisse

Mittlerer Durchlassgrad: 0,05 % (sechs Messungen)

Standardabweichung: 0,02 %

Bei einer Filterflächenbelastung von  $200 \text{ m}^3/\text{m}^2 \cdot \text{h}$  entsprechend einer Filteranströmgeschwindigkeit von 0,056 m/s ist der Durchlassgrad sicher  $< 0,10 \%$  (s. Pkt. 5 der Grundsätze zur Prüfung).

Die Anforderungen an die Filtermaterialabscheideleistung der Staubklasse "M" werden erfüllt.

#### 8. Durchflusswiderstand

Der Durchflusswiderstand des Filtermaterials wird vor der Quarzstaubprüfung ermittelt.

8.1 Filterflächenbelastung:  $200 \text{ m}^3/\text{m}^2 \cdot \text{h}$

8.2 Anströmgeschwindigkeit: 0,056 m/s

#### 8.3 Prüfergebnis

Mittlerer Durchflusswiderstand: 58 Pa (6 Messungen)

9. Luftdurchlässigkeitsprüfung:  $700 \text{ m}^3/\text{m}^2 \cdot \text{h}$

Die Luftdurchlässigkeit des Filtermaterials wird bei einem Differenzdruck von 200 Pa vor der Quarzstaubprüfung ermittelt.

10. Flächengewichtsprüfung:  $240 \text{ g}/\text{m}^2$

#### 11. Kennzeichnung

Die Anforderungen werden erfüllt.

Institut für Arbeitsschutz – IFA –  
Im Auftrag



Christian Sollik



**F.LLI BARBUZZI S.n.c.**

di BarbuZZi Antonio &amp; C.

Via Della Merlata, 22 - 20014 Nerviano (MI)

tel. 0331 58 96 14 - fax 0331 58 90 13

e-mail: [info@filbarbuzzisnc.191.it](mailto:info@filbarbuzzisnc.191.it)

Allegato P13BAIR-A-0

**DICHIARAZIONE DI CONFORMITA' CE n° 365****DIRETTIVA 97/23/CE**

06/12/11



Certificato N. 8094/01

CLIENTE STIMA S.p.A.

Via Giudei, 33-35

- 40050 - FUNO DI ARGELATO (BO)

DDT 000311 DEL 06/12/11

identificazione articolo	descrizione	Q.tà	matricola		lotto di produzione
			da	a	
S012/245/2/155/G2A	Serbatoio per aria compressa da lt 12 con 2 attacchi 1/2"	40	000001	000040	11444
	STAMPIGLIATURA ANNO 2012				
	CONSEGNATI IN ACCONTO	32	000001	000032	

**RIFERIMENTO: DIRETTIVA 97/23/CE (PED)**

I SUDDETTI SERBATOI SONO UTILIZZABILI PER CONTENERE GAS APPARTENENTI AL GRUPPO 2 (NON PERICOLOSI) E RICADONO NELLA TABELLA 2. DAL PRODOTTO PS (11 bar) x V (12 lt) SI EVINCE CHE IL RISULTATO E' INFERIORE A 200 bar/lt, E QUINDI SONO SOTTOPOSTI ALLA PROCEDURA DI VALUTAZIONE DI CONFORMITA' MODULO A.

**CATEGORIA DI RIFERIMENTO: I**

Noi attestiamo che, salvo eccezioni o deroghe sopra indicate, la presente fornitura è stata fabbricata SOTTO TUTTI GLI ASPETTI secondo le norme e regolamenti del mercato che ad essa si riferiscono e che, dopo l'effettuazione dei controlli secondo nostre procedure interne, risponde altresì alle specifiche tecnico-qualitative richieste dal Cliente.

LEGALE RAPPRESENTANTE

Rag. Savino BarbuZZi

**OSSERVAZIONE**

L'elemento di rintracciabilità da fornire per eventuali informazioni è costituito dal numero di commessa interna (lotto di produzione) riportato sul verbale collaudo serbatoio di accompagnamento del prodotto e sul presente documento.

**ISTRUZIONI PER L'UTILIZZATORE**

FASE	EVENTO	PERICOLO	SUGGERIMENTI E PRECAUZIONI	PROVVEDIMENTO
TRASPORTO	CADUTA	AMMACCATURA	Trasportare in contenitori che proteggono l'apparecchiatura da urti accidentali.	In caso di ammacatura restituire al fabbricante per verifiche
INSTALLAZIONE	N.A.	N.A.	N.A.	N.A.
ESERCIZIO	SOVRAPRESSIONE	SCOPPIO INVOLUCRO	TS: -10° +50°C PS: 11 BAR PT: 16 BAR Prevedere sul serbatoio una valvola di sicurezza con taratura uguale alla PS.	Il serbatoio viene provato ad una pressione di 16 bar senza subire nessuna deformazione. Il serbatoio deve scoppiare ad una pressione non minore di 57 bar. Qualora venga superata per cause accidentali, rivolgersi ad un tecnico specializzato o al fabbricante per verifiche.
MANUTENZIONE	USURA CORROSIONE	ASSOTTIGLIAMENTO SPESSORE E/O SCOPPIO	Evitare: - urti per non danneggiare la verniciatura. - il lavaggio e il contatto con sostanze corrosive.	Il serbatoio deve essere utilizzato per l'uso previsto. Sostanza indicata: - aria o altri gas non pericolosi (gruppo 2).
DISMISSIONE	SCORRETTA DEPRESSIONE DELL'APPARECCHIO	PROIEZIONE VIOLENTA DEL PRODOTTO	Rivolgersi a una società che esegue la manutenzione per un corretto smaltimento.	Per eseguire lo smaltimento rivolgersi al personale autorizzato che effettua lo smaltimento secondo le leggi vigenti. In caso di fuoriuscita accidentale del prodotto lavare le parti del corpo con acqua.

# Certificato di applicazione degli aspiratori industriali alle macchine per lavorazione di profilati di alluminio



Cattolica 21/11/2012

**Parere per applicazione di aspiratore elettrico a macchina di taglio profilati in alluminio.**

## **Premessa**

1. I modelli di aspiratore che sono stati presi in considerazione sono i seguenti.


Serie	Diametro serbatoio (mm)	Motorizzazione	Capacità (Lt)
360	360	Turbina / Ventola	38
460	460	Turbina / Ventola	100
570	570	Turbina / Ventola	160

2. Le costruzioni sono dichiarate conformi alla direttiva 2006/42/CE e 2004/108/CE e quindi marcate CE.
3. La norma armonizzata EN 60035-2-69 è un riferimento tecnico utilizzabile anche se non valido per la conformità perché l'apparecchio in questione è concepito per essere parte di un processo produttivo (uso previsto tra le esclusioni di applicazione della norma).
4. Le caratteristiche sul tipo di miscela di polveri di alluminio sono le seguenti:
  - a. Si assume che, del volume di truciolo prodotto su lavorazioni quali il taglio, la percentuale di granulometria esplodibile (minore di 500 micron) è praticamente **nulla**.
  - b. La polvere di alluminio ha una temperatura di innesco della nube di 530°C, dello strato di 430 °C.
5. In mancanza di documenti di qualificazione certi della miscela di polveri di alluminio generati da una macchina di taglio profili, si prende a riferimento il database delle polveri generato e gestito da IFA – Institut für Arbeitsschutz der Deutschen Gesetzlichen Unfallversicherung.
6. Delle diverse schede presenti nel suddetto database quella che segue è quella che più si avvicina alle miscele descritte al punto 4.

# Certificato di applicazione degli aspiratori industriali alle macchine per lavorazione di profilati di alluminio



## **Trucioli di alluminio, generati da attività di taglio 5640 (lega di alluminio)**

**IFA**  
Institut für Arbeitsschutz der  
Deutschen Gesetzlichen Unfallversicherung

GESTIS-DUST-EX

DGUV | Contact | Deutsch | Français

Search

Home > Results > Detailed information

**Detailed information on:**  
**Aluminium shavings, cutting (→ 5640)**

characteristic	
→ Particle size <500 µm [% by weight]	3
→ Particle size <250 µm [% by weight]	1
→ Median Value [µm]	1350
→ Moisture Content [% by weight]	0,0
→ Combustibility BZ	1

The fineness and moisture content indicated in the first column refer to the state of the dust sample as delivered. The "delivered" state may also be identical to the tested state.

The listed combustion and explosion characteristics always apply only to the dust with the conditions described in the same column.

The data of GESTIS-DUST-EX are compiled and updated carefully. Nevertheless, any liability is excluded (cf. → [limits of applicability](#)).

# Certificato di applicazione degli aspiratori industriali alle macchine per lavorazione di profilati di alluminio



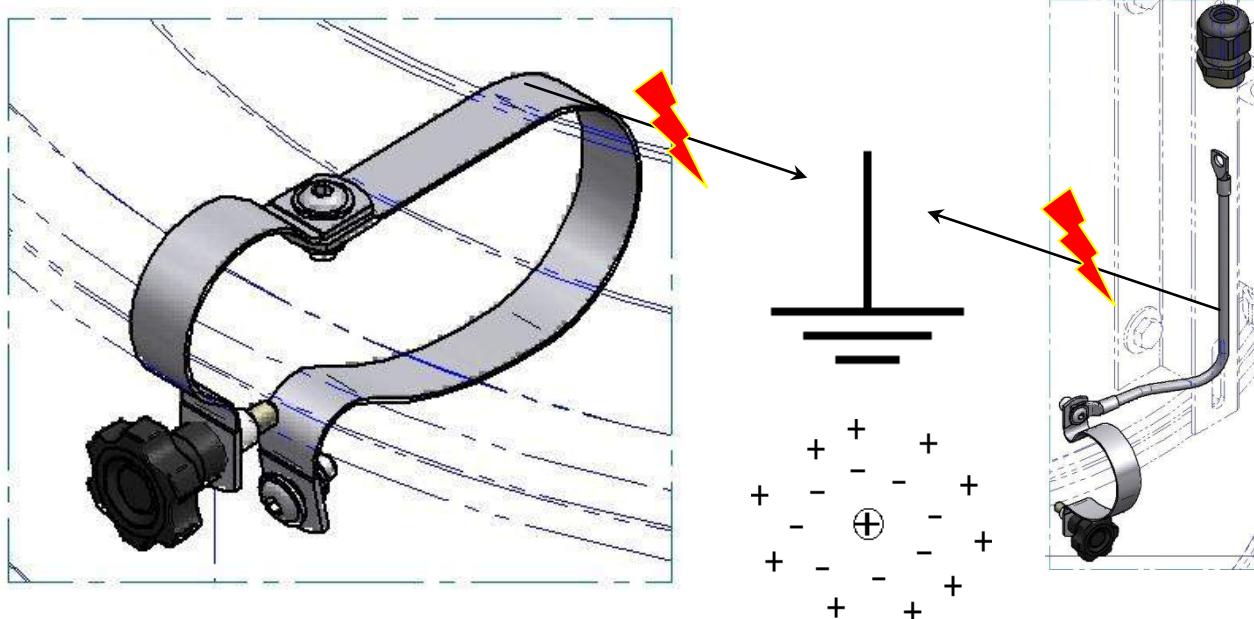
## Conclusioni

Dalla tabella sopra riportata si evince che solo il 3% del truciolo generato ha dimensioni inferiori a 500 micron (dimensione limite della granulometria sotto la quale essa può diventare esplodibile), **il rischio di esplosione quindi non sussiste.**

Qualora l'aspiratore venisse installato su macchine utensili differenti e/o che generassero un tipo di miscela di polveri di alluminio dove la percentuale di truciolo di dimensioni inferiori a 500 micron fosse sensibilmente superiore il caso andrebbe valutato di volta in volta.

In tutti quei casi comunque ritenuti a potenziale rischio l'utilizzo di refrigerante riduce sensibilmente la probabilità di esplosione.

Per debellare completamente il rischio di esplosioni che potrebbe nonostante tutto venirsi a creare iVision consiglia l'utilizzo del "Kit Antistatico" che rende equipotenziali elettrostaticamente fra loro le parti della macchina.





## MEZZI FILTRANTI ANTISTATICI

### DICHIARAZIONE DI CONFORMITÀ

La sottoscritta Testori S.p.A. con sede in Largo A. Testori, n.5 - 20026 Novate Milanese (MI), dichiara sotto la propria responsabilità che il seguente prodotto di sua fabbricazione:

**Feltro agugliato Poliestere/ Inox tipo TW 450 SC**

destinato ad essere utilizzato in applicazioni in presenza di atmosfera potenzialmente esplosiva, è stato testato in conformità alle norme armonizzate:

UNI EN 1127-1:2008

*"Atmosfere esplosive – Prevenzione dell'esplosione e protezione contro l'esplosione – Concetti fondamentali e metodologia"*

UNI EN 13463-1:2009

*"Apparecchi non elettrici per atmosfere potenzialmente esplosive. Metodo di base e requisiti"*

CEI EN 60079-0:2007

*"Costruzioni elettriche per atmosfere esplosive per la presenza di gas. Regole generali"*

DIN 54345-1:1992

*"Elektrostatishes Verhalten. Bestimmung elektrischer Widerstandgrossen"*

DIN 54345-5:1985

*"Elektrostatishes Verhalten. Bestimmung des elektrischen Widerstandes an Streifen aus textilen Flachengebilden"*

al fine di determinarne il valore di resistività elettrostatica.

**Tale valore risulta essere inferiore a  $10^4 \Omega$**

Pertanto tale mezzo filtrante, pur non necessitando di marcatura CE (in quanto non definibile come apparecchiatura definita al punto 1.3 della direttiva 94/9/CE) se correttamente collegato a circuito di terra, consente di rispettare i requisiti posti in materia di conduttività elettrica richiesti per le apparecchiature soggette alla direttiva 94/9/CE "ATEX" nelle quali il presente prodotto venga inserito

Novate Milanese, 7 Marzo 2012

TESTORI S.p.A.  
Direzione Tecnica  
(Ing. Alberto Pagani)

# DICHIARAZIONE

DECLARATION



# DI CONFORMITA'

OF CONFORMITY

Il sottoscritto Alessandrini Andrea in qualità di legale rappresentante di IVISION Srl, con sede in Via Mercadante - 14 - 47841 Cattolica (RN) - ITALY.

Andrea Alessandrini, the undersigned, as legal representative of IVISION Srl, with headquarters in Via Mercadante - 14 - 47841 Cattolica (RN) - ITALY.

Dichiara, sotto la propria responsabilità che:

L'aspiratore industriale (Fascicolo Tecnico 01/2010 del 28/07/2010 e 01/2012 del 11/06/2012)

Declare under our sole responsibility that:

The industrial vacuum extractor (Technical Paper 01/2010 of 28/07/2010 and 01/2012 of 11/06/2012)

- **MODELLO: MODEL:** \_\_\_\_\_
- **CODICE: CODE:** \_\_\_\_\_
- **MATRICOLA: SERIAL NUMBER:** \_\_\_\_\_
- **ANNO: YEAR:** \_\_\_\_\_
- **Ex II 3D T135° 0÷40°C**

Risulta essere conforme a tutte le disposizioni pertinenti previste dalle seguenti direttive comunitarie.

Found to comply with all relevant provisions of the following Directives.

2006/42/CE DIRETTIVA MACCHINE 2006/42/CE MACHINES DIRECTIVE
----------------------------------------------------------------

2004/108/CE DIRETTIVA COMPATIBILITA' Elettromagnetica 2004/108/CE ELECTROMAGNETIC COMPATIBILITY
----------------------------------------------------------------------------------------------------

94/9/CE DIRETTIVA ATEX 94/9/CE ATEX DIRECTIVE
--------------------------------------------------

Soddisfa i requisiti delle seguenti norme armonizzate:

Meets the requirements of the following harmonized regulation:

EN ISO 12100-1 (2004), EN ISO 12100-2 (2004), EN 1127-1 (2007)

La presente dichiarazione perde la sua validità qualora vengano apportate modifiche alla macchina e/o non vengano rispettate le prescrizioni del manuale di uso e manutenzione.

The present declaration loses its validity in case of modifications to the machine or/and the rules cited in the use and maintenance booklet are not respected.

Cattolica \_\_\_\_\_

iVision Srl – Società con unico socio  
Sede Legale 47841 - CATTOLICA  
Via Mercadante, 14 (Rimini)

Reg. Imprese di Rimini R.E.A. 313675  
C.F. e P.I. 03860600406  
Capitale Sociale 20.000 Euro i.v.

 IVISION Srl.

www.ivisionsrl.it  
info@ivisionsrl.it

iVision srl erklärt auf eigene Verantwortung, dass die auf der Vorderseite beschriebene Maschine mit den anwendbaren Bestimmungen der EU-Richtlinien (einschließlich aller anwendbaren Änderungen) konform ist und die Anforderungen der aufgeführten harmonisierten Normen erfüllt.

Die vorliegende Erklärung verliert ihre Gültigkeit, wenn an der Maschine Änderungen vorgenommen und/oder die Vorschriften in der Betriebs- und Wartungsanleitung nicht eingehalten werden.

iVision srl declara, bajo su responsabilidad, que la máquina descrita en esta cara de la página está en conformidad con todas las disposiciones pertinentes previstas por las directivas comunitarias (incluidas todas las modificaciones aplicables) y satisface los requisitos de las normas armonizadas enumeradas. Esta declaración pierde su validez si se realizan modificaciones a la máquina y/o no se respetan las disposiciones del manual de uso y mantenimiento.

iVision srl déclare sous sa propre responsabilité que la machine décrite ci-contre est conforme à toutes les dispositions pertinentes prévues par les directives communautaires (y compris toutes les modifications applicables) et aux normes harmonisées énumérées.

La validité de cette déclaration cessera en cas de modifications apportées à la machine ou de non-respect des prescriptions du manuel d'utilisation et d'entretien.

iVision srl declara, sob a própria responsabilidade que a máquina descrita na parte anterior desta página está em conformidade com as disposições pertinentes previstas pelas diretivas comunitárias (inclusive todas as modificações aplicáveis) e satisfaz os requisitos das normas harmonizadas referidas. Esta declaração perderá a sua validade caso sejam efetuadas modificações na máquina e/ou não sejam cumpridas as prescrições do manual de uso e manutenção.

Компания iVision srl заявляет, под собственной ответственностью, что машина, описанная на лицевой стороне листа, соответствует всем предписаниям директив европейского сообщества (включая все применяемые изменения) и отвечает всем требованиям, перечисленных согласованных стандартов.

Настоящая декларация теряет свою силу, если вводятся изменения в машину и/или не соблюдаются предписания руководства по эксплуатации и техобслуживанию.



# DICHIARAZIONE DECLARATION

# DI CONFORMITA' OF CONFORMITY

Allegato II 1A 2006/42/CE  
Attachment II, 1A 2006/42/CE

Il sottoscritto Alessandrini Andrea in qualità di legale rappresentante di IVISION Srl, con sede in Via Mercadante - 14 - 47841 Cattolica (RN) - ITALY.  
Andrea Alessandrini, the undersigned, as legal representative of IVISION Srl, with headquarters in Via Mercadante - 14 - 47841 Cattolica (RN) - ITALY.

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Declare under our sole responsibility that:  
The industrial vacuum extractor (Technical Paper 01/2010 of 28/07/2010)

- **MODELLO: MODEL:** \_\_\_\_\_
- **CODICE: CODE:** \_\_\_\_\_
- **MATRICOLA: SERIAL NUMBER:** \_\_\_\_\_
- **ANNO: YEAR:** \_\_\_\_\_

Risulta essere conforme a tutte le disposizioni pertinenti previste dalle seguenti direttive comunitarie (comprese tutte le modifiche applicabili).  
Found to comply with all relevant provisions of the following Directives (including all applicable amendments).

2006/42/CE DIRETTIVA MACCHINE  
2006/42/CE MACHINES DIRECTIVE

2004/108/CE DIRETTIVA COMPATIBILITA' Elettromagnetica  
2004/108/CE ELECTROMAGNETIC COMPATIBILITY

Soddisfa i requisiti delle seguenti norme armonizzate:  
Meets the requirements of the following harmonized regulation:  
**EN ISO 12100-1 (2004), EN ISO 12100-2 (2004), EN 60241-1 (2006)**

La presente dichiarazione perde la sua validità qualora vengano apportate modifiche alla macchina e/o non vengano rispettate le prescrizioni del manuale di uso e manutenzione.  
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Cattolica \_\_\_\_\_

iVision Srl - Società con unico socio  
Sede Legale 47841 - CATTOLICA  
Via Mercadante, 14 (Rimini)

Reg. Imprese di Rimini R.E.A. 313675  
C.F. e P.I. 03860600406  
Capitale Sociale 20.000 Euro i.v.

  
IVISION Srl.  
Tel. +39.0541.833094  
www.ivisionsrl.it  
info@ivisionsrl.it



iVision srl erklärt auf eigene Verantwortung, dass die auf der Vorderseite beschriebene Maschine mit den anwendbaren Bestimmungen der EU-Richtlinien (einschließlich aller anwendbaren Änderungen) konform ist und die Anforderungen der aufgeführten harmonisierten Normen erfüllt.  
Die vorliegende Erklärung verliert ihre Gültigkeit, wenn an der Maschine Änderungen vorgenommen und/oder die Vorschriften in der Betriebs- und Wartungsanleitung nicht eingehalten werden.

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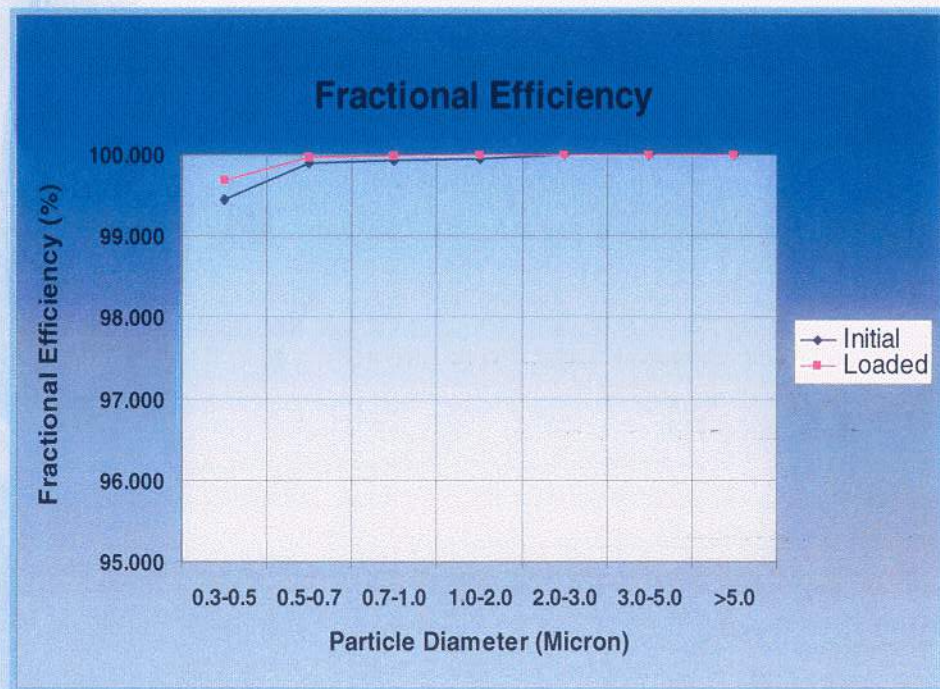
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# Tetratex® High Efficiency Membrane

## Typical Applications

- Toner
- Carbon Black
- Pigment
- Furnaces
- Foundry
- Ferro - Alloy



**PRGY2.E206904  
Motors - Component**[Page Bottom](#)

---

**Motors - Component**[See General Information for Motors - Component](#)

**RON TAI MOTOR FTY CO LTD**  
64-2 CHIU-SIR LN  
PEITUN DISTRICT  
TAICHUNG, 406 TAIWAN

E206904

**Motors.** Models RT, HB Series followed by additional letters and/or numbers.

Marking: Company name and motor model designation.

Last Updated on 2005-10-21

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I VISION**

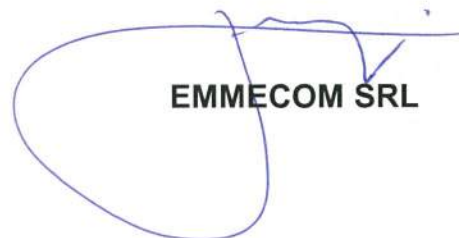
Via Mercadante, 14  
47841 Cattolica (RN)

Cologno Monzese, May 2012

**SUBJECT: STATEMENT MATERIALS**

The present letter to declare that the electric motors are made by material conforming to **UL Standards**, as specification attached.

Best Regards



**EMMECOM SRL**





## **MATERIAL DECLARATION**

The following material being used in motors:

<b>NAME</b>	<b>MODEL</b>	<b>CERTIFICATE No.</b>
Varnish	R-1140-M	E227128
Tie Cords	TIE CORDS	E242776
Silicone Tesin	HST	E246632
Insulating paper	FDMD	E242776
Insulated wire	UL3321 (18-16-14)	E248566
Magnet Wire	QZY-X/180	E307975
COOLING FAN	70G33HS1L (+)	E41938
phenol	6690	E40654
Capacitors	CBB65A-1	E211363
Capacitors cover	70G33HS1L (+)	E41938
Terminal board	7522-BS	E177315
Terminal jacket	DF250-40-14	E206666
Capacitor wire	SVT	E248991
Thermal protector	7AM038A5	E40044
Wire nylon fixation	A(r)GF(a)1	E240925
Terminal clip	RNBS1-4	E96029
Terminal clip	RNBS2-4	E96029

EMMECOM SRL

*The President*

Vittorio Vergani

emmecom srl – Via Pietro Nenni 70 – 20093 COLOGNO MONZESE – MI - ITALY

Tel.+39 02-2533300 - Fax +39 02-27307908

Web site: [www.emmecomsrl.com](http://www.emmecomsrl.com) - e-mail: [info@emmecomsrl.com](mailto:info@emmecomsrl.com)

REA 1643810 Cod.Meccanografico MI355053

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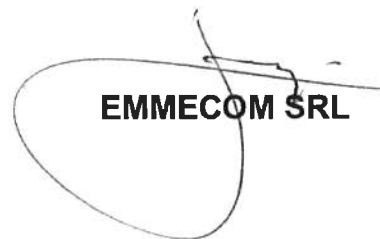
Spett.le  
**IVISION SRL**  
Via Mercadante, 14  
47841 Cattolica (RN)

Cologno Monzese, 11/04/2012

**OGGETTO: DICHIARAZIONE MATERIALI**

La presente per dichiarare che i motori sono realizzati con materiale conforme alle Normative UL, come da specifica allegata.

Cordiali saluti.

  
**EMMECOM SRL**

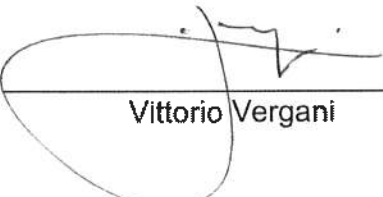


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Terminal clip	RNBS1-4	E96029
Terminal clip	RNBS2-4	E96029

**EMMECOM SRL**  
*The President*



Vittorio Vergani

<b>FELTRO AGUGLIATO POLIESTERE 500 MICRO</b>	<b>34MICR</b>
----------------------------------------------	---------------

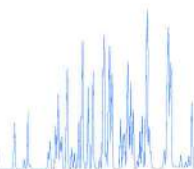
Fibre / fibers / faserauflage / nappe	POLYESTER
Tessuto / fabric / gewebe / tissu	POLYESTER
Peso / weight / gewicht / poids	g/m2 450+50
Permeabilità all'aria / air permeability / luftdurchlässigkeit / perméabilité à l'air	l/dm2/min (20 mm. C.A.) 80
Spessore / thickness / dicke / épaisseur	mm 1,80
Densità / density / dichte / densité	g/cm3 0,28
Volume dei pori / void volume / porenvolumen / volume de pores	80%
Resistenza alla rottura / tensile strength / reißkraft / résistance à la rupture	
in lunghezza / lengthwise / längs / en longueur	da N/5 cm >130
in traverso / crosswise / quer / en travers	da N/5 cm >140
Allungamento alla rottura / elongation at break / reißdehnung / allongement à la rupture	
in lunghezza / lengthwise / längs / en longueur	<20%
in traverso / crosswise / quer / en travers	<25%
Resistenza alla temperatura (secca) / temperature resistance (dry) / Temperaturbeständigkeit bei Trockenhitze / résistance à la tempé- rature (sèche)	
Temperatura di esercizio / operating temperature / dauerbelastung / température de travail	150° C
Brevi punte / short peaks / kurzzeitbelastung / brèves pointes	160° C

<b>Micro</b> Membrana di schiuma PAC, trattamento antiadesione / foam coating, anti adhesive treatment / schaumbeschichtung, oleophobe und hydrophobe imprägnierung
------------------------------------------------------------------------------------------------------------------------------------------------------------------------

G.d.F. = Trattenimento sino ad un (1) micron

Certificati BIA - classe USGC / BIA certificate - class USGC / BIA zertifikat - klasse USGC

I dati tecnici sono stati determinati secondo le norme DIN. Le informazioni tecniche suelencate sono indicative e soggette a modifiche. Le tolleranze usuali sono applicabili



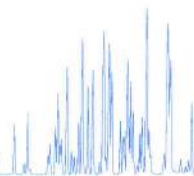
-	Test report N°:	EMI/177	Date: 27th April 2012
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-	Emission point	Industriesauger V570-2,2-1400 (Test mit Filterklasse M)	
-	Company Customer:	iVision s.r.l. Via Mercadante, 14 - 47841 Cattolica (RN)	
-	Company Recipient:	iVision s.r.l. Via Mercadante, 14 - 47841 Cattolica (RN)	
-	Test made by:	Dott. Enrico Camillucci	Date: 27.04.12
-	Start of the test:	10.30	End of the Test: 11.30

-	Physical parameters	Measuring Unit	Value	Limit	METHODICAL
-	Working temperatur	°C	23,3	-	UNICHIM 10169
-	Pressure	mbar	1.012	-	UNICHIM 10169
-	Working speed	m/s	30,21	-	UNICHIM 10169
-	Inner Diameter of the chimney	cm	10	-	UNICHIM 10169
-	Section part of the chimney	m²	0,008	-	UNICHIM 10169
-	Avarage Capacity of the channel	m³/h	854	-	UNICHIM 10169
-	Normalised avarage capacity of the channel	Nm³/h	786	-	UNICHIM 10169
-	Chemical parameters	Measuring Unit	Value	Limit	METHODICAL
1	Particulate material	mg/Nm³	<0,1	-	UNICHIM 10263

-	Test report N°:	EMI/177	Date: 27th April 2012
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-	Emission point	Industriesauger V570-2,2-1400 (Test mit Filterklasse L)	
-	Company Customer:	iVision s.r.l. Via Mercadante, 14 – 47841 Cattolica (RN)	
-	Company Recipient:	iVision s.r.l. Via Mercadante, 14 – 47841 Cattolica (RN)	
-	Test made by:	Dott. Enrico Camillucci	Date: 27.04.12
-	Start of the test:	9.30	End of the Test: 10.30

-	Physical parameters	Measuring Unit	Value	Limit	METHODICAL
-	Working temperatur	°C	22,6	-	UNICHIM 10169
-	Pressure	mbar	1,012	-	UNICHIM 10169
-	Working speed	m/s	32,16	-	UNICHIM 10169
-	Inner Diameter of the chimney	cm	10	-	UNICHIM 10169
-	Section part of the chimney	m²	0,008	-	UNICHIM 10169
-	Avarage Capacity of the channel	m³/h	909	-	UNICHIM 10169
-	Normalised avarage capacity of the channel	Nm³/h	838	-	UNICHIM 10169
-	Chemical parameters	Measuring Unit	Value	Limit	METHODICAL
1	Particulate material	mg/Nm³	<0,1	-	UNICHIM 10263





## Filter classes

The allocation of hazardous powders to health and related suction devices is regulated by IEC 60335-2-69 worldwide and by EN 60335-2-69 at European level.

□ Category of powders **L** (moderate). Powders with MPC values (Maximum permitted concentration in the work place)  $> 1 \text{ mg/m}^3$ , fall within this category.

At least 99% of sucked particles are withheld.

The sucked material is disposed of by attempting to lift little powder.

□ Category of powders **M** (medium). Powders with MPC values (Maximum permitted concentration in the work place)  $> 0,1 \text{ mg/m}^3$  and wood powders, fall within this category. At least 99,9% of sucked particles are withheld.

The sucked material is disposed of by attempting to lift little powder.

□ Category of powders **H** (high). Powders with MPC values (Maximum permitted concentration in the work place)  $< 0,1 \text{ mg/m}^3$ , including carcinogenic and pathogenic dust, fall within this category.

Dry hazardous dusts, inflammable	Max. permeability	Vacuum cleaner dust class
OEL* values $> 1 \text{ mg/m}^3$	$< 1\%$	L
OEL* values $> 0.1 \text{ mg/m}^3$	$< 0.1\%$	M
OEL* values $< 0.1 \text{ mg/m}^3$	$< 0.005\%$	H

**L CLASS:** These vacuum cleaners permit picking up dusts with OEL values (occupational exposure limits) of  $> 1 \text{ mg/m}^3$ . **(are standard for iVision)**. This is the standard filter for aluminium and PVC dust in the window – cutting Industry

**M CLASS:** These vacuum cleaners permit picking up dusts of the dust classes L and M with OEL values of  $\geq 0.1 \text{ mg/m}^3$ , also hardwood, dust. **(can be delivered by iVision, if the customer asks for it)**

**H CLASS:** These vacuum cleaners permit picking up dusts of the dust classes L, M and H with OEL values of  $< 0.1 \text{ mg/m}^3$ , carcinogenic dusts and dusts with germs or bacteria. Usually used for medical applications or for extraction of carcinogen materials **(iVision does not sell vacuum cleaners with H class filters)**

### Hepa Filters (high-efficiency particulate air filter):

iVision can provide an additional HEPA Filter for M – Class vacuum cleaners with an additional price of 400,00 € (40%+10% Ferracci discount)

### Blocchi aggiuntivi e accessori



11 LMH...



11 LMU... - 11 LMA...



11 SMX90 32



11 SMX90 30



11 LMZ111 - 11 LMZ112



11 LMZ113 - 11 LMZ114



11 LMZ105



11 LMZ106



11 LMNPE



23 NEON...V

Codice di ordinazione	Caratteristiche	Q.tà per conf.	Peso
		n°	[kg]
Contatti ausiliari aggiuntivi laterali.			
11 LMH 01	1NC	10	0,037
11 LMH 10	1NA	10	0,036
11 LMH 11	1NA + 1NC	10	0,042
11 LMH 20	2NA	10	0,037
Sganciatore di minima tensione.			
11 LMU	Per tutti i tipi	10	0,066
Bobina di apertura.			
11 LMA	Per tutti i tipi	10	0,064
Morsetti per alimentazione barre.			
11 SMX90 30	Per tutti i tipi	10	0,048
Barre per allacciamenti trifase passo 45mm.			
11 SMX90 32	Per 2 interruttori senza contatti ausiliari laterali	10	0,028
11 SMX90 33	Per 3 interruttori senza contatti ausiliari laterali	10	0,050
11 SMX90 34	Per 4 interruttori senza contatti ausiliari laterali	10	0,071
11 SMX90 35	Per 5 interruttori senza contatti ausiliari laterali	10	0,092
Barre per allacciamenti trifase passo 54mm.			
11 SMX90 42	Per 2 interruttori con contatti ausiliari laterali	10	0,031
11 SMX90 43	Per 3 interruttori con contatti ausiliari laterali	10	0,056
11 SMX90 44	Per 4 interruttori con contatti ausiliari laterali	10	0,081
11 SMX90 45	Per 5 interruttori con contatti ausiliari laterali	10	0,081
Contenitori da parete.			
11 LMZ 111	IP55. Larghezza 80mm	1	0,260
11 LMZ 112	IP54. Larghezza 80mm	1	0,273
Contenitori da incasso.			
11 LMZ 113	IP55. Larghezza 85mm	1	0,204
11 LMZ 114	IP41. Larghezza 85mm	1	0,184
ACCESSORI PER I CONTENITORI.			
Blocco lucchettabile.			
11 LMZ 105	Max. 3 lucchetti	10	0,091
Pulsante per arresto d'emergenza. IP55.			
11 LMZ 106	Per LMZ 111, LMZ 113 e LMZ 114	1	0,051
Connessione per neutro.			
11 LMNPE	Per tutti i tipi	10	0,010
Lampade di segnalazione.			
23 NEONV	Verde	10	0,006
23 NEONR	Rossa	10	0,006
Membrana in gomma con cornice per contenitori.			
11 LMM	Per contenitori LMZ 111, LMZ 113 e LMZ 114	10	0,012
Adattatore fori da M25 a PG16.			
11 LM M25 PG16	Per contenitori LMZ111 e LMZ112	10	0,009

① Precipare tensione. La cifra va seguita da 60 se a 60Hz.

Tensioni disponibili:

– AC 50Hz 24 - 48 - 110 - 220-240 (indicare 220) - 380-415 (indicare 380) - 440-460 (indicare 440) - 480 e 575VAC.

② Inserire il valore di tensione desiderata.

Tensioni disponibili:

– AC 50/60Hz 220-240 (indicare 220) - 380-415 (indicare 380).

### Caratteristiche generali e di impiego

#### CONTATTI AUSILIARI AGGIUNTIVI

- agganciabili sul lato destro o sinistro dell'interruttore salvamotore
- massima componibilità: 2 blocchi LMH... con 4 contatti ausiliari in totale entrambi laterali, ciascuno con 2 contatti
- tensione nominale di isolamento  $U_i$ : 500V
- corrente convenzionale termica in aria libera  $I_{th}$ : 6A
- corrente di impiego (AC15): 3,5A 230V; 2A 400V
- fusibile di protezione (gL o gG): 6A massimo
- coppia massima serraggio: 1Nm o 9lbin
- sezione conduttore minima e massima (1 o 2 conduttori): 0,75÷2,5mm<sup>2</sup> o 18÷14AWG
- l'ingombro in larghezza dei contatti ausiliari LMH... è pari a 0,5 moduli normalizzati DIN 43880.

#### SGANCIATORE DI MINIMA TENSIONE E BOBINA DI APERTURA

- da inserire a scomparsa all'interno del salvamotore.

	Sganciatore di minima	Bobina apertura
Campo di rilascio	0,35÷0,7Us	—
Campo di funzion.	0,85÷1,1Us	0,7÷1,1Us
Fattore di marcia	100%	—

#### BARRE PER ALLACCIAMENTI TRIFASI

- $I_{max}$  63A
- SMX90 3... passo 45mm per avere il minimo ingombro in larghezza
- SMX90 4... passo 54mm per consentire il montaggio sugli interruttori di un blocco aggiuntivo di contatti ausiliari laterale.

#### MORSETTIERA PER ALIMENTAZIONE BARRE

- $I_{max}$  63A
- coppia massima serraggio: 2,3Nm o 20lbin
- sezione conduttore minima e massima: 4÷25mm<sup>2</sup> o 10÷4AWG.

#### CONTENITORE DA PARETE

- ingresso cavi previsti in alto e in basso:
  - filetto M25
- ingresso cavi previsti sul retro:
  - diaframma sfondabile Ø 15,5mm
- è possibile montare un massimo di due blocchi di contatti ausiliari
- morsetto di terra incorporato
- temperatura d'impiego: -5...+40°C
- temperatura di stoccaggio: -50...+80°C.

#### CONTENITORE DA INCASSO

- dimensione finestra 70x115mm
- è possibile montare un massimo di due blocchi di contatti ausiliari
- morsetto di terra incorporato
- temperatura d'impiego: -5...+40°C
- temperatura di stoccaggio: -50...+80°C.

#### ACCESSORI PER CONTENITORI

##### Blocco lucchettabile:

- impedisce la manovra di chiusura; max. 3 lucchetti.

##### Pulsante arresto d'emergenza:

- ad aggancio, sgancio a rotazione
- pulsante rosso Ø 35mm.

NOTA: gli accessori sopra indicati una volta montati sui contenitori elevano il grado di protezione da IP41 a IP55.

#### Omologazioni e conformità

Omologazioni ottenute: cULus per contatti ausiliari aggiuntivi, sganciatore di minima tensione e bobina di apertura; GOST per tutti i tipi LM... e SMX....  
Conformi alle norme: IEC/EN 60947-1, IEC/EN 60947-5-1, UL508, CSA C22.2 n° 14.



## 1 Interruttori salvamotore LMS25... fino a 25A



11 LMS 25...

Codice di ordinazione	Campo regolazione sganciatore termico	Potere di interruzione in corto circuito 400V		Q.tà per conf.	Peso
		Icu	Ics		
	[A]	[kA]	[kA]	n°	[kg]

Potere di interruzione Icu a 400V: 100kA (0,1÷6,3A)  
6kA (6,3÷10A)  
4kA (10÷25A).

11 LMS25 016T	0,1÷0,16	100	100	5	0,193
11 LMS25 025T	0,16÷0,25	100	100	5	0,193
11 LMS25 04T	0,25÷0,4	100	100	5	0,193
11 LMS25 063T	0,4÷0,63	100	100	5	0,193
11 LMS25 1T	0,63÷1	100	100	5	0,193
11 LMS25 1V6T	1÷1,6	100	100	5	0,193
11 LMS25 2V5T	1,6÷2,5	100	100	5	0,266
11 LMS25 4T	2,5÷4	100	100	5	0,266
11 LMS25 6V3T	4÷6,3	100	100	5	0,266
11 LMS25 10T	6,3÷10	6	3	5	0,266
11 LMS25 16T	10÷16	4	2	5	0,266
11 LMS25 20T	16÷20	4	2	5	0,266
11 LMS25 25T	20÷25	4	2	5	0,266

### Caratteristiche generali

Il salvamotore LMS25 è particolarmente adatto per il comando di piccole macchine operatrici. Sganciatori e contatti ausiliari lo rendono idoneo anche per impieghi più complessi. I contenitori da parete e da incasso consentono il montaggio del salvamotore LMS25 nelle condizioni ambientali più svariate (polvere, umidità, ambienti aggressivi, ecc.).

### Caratteristiche di impiego

- tensione nominale di isolamento Ui: 690V
- tensione nominale di tenuta a impulso: 6kV
- frequenza nominale: 50/60Hz
- corrente nominale massima: 25A
- 13 campi di regolazione da 0,1 a 25A
- potere d'interruzione: vedere tabella sotto riportata
- dissipazione termica: 2÷15W
- intervento magnetico: 12In max
- classe di intervento: 10
- sensibilità alla mancanza fase
- durata meccanica: 100.000 cicli
- durata elettrica 25A (AC3): 100.000 cicli
- fissaggio a vite o su profilato omega da 35mm
- posizione di montaggio: qualsiasi
- categoria di utilizzazione: A
- grado di protezione: IP20.

### Omologazioni e conformità

Omologazioni ottenute: cULus, GOST.  
Conformi alle norme: IEC/EN 60947-1, IEC/EN 60947-2, IEC/EN 60947-4-1, UL508, CSA C22.2 n° 14.

Nota: quando vengono montati più interruttori salvamotori affiancati (senza spazi che consentano la circolazione di aria sui lati) con funzionamento simultaneo, la posizione del taratore deve essere incrementata del 15% rispetto alla corrente nominale del motore.

### Potere di interruzione

Tipo	Potere di interruzione nominale in corto circuito [kA]								Fusibili di protezione per I > Icu			
	230V		400V		500V		690V		230V		400V	
	Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics	Fusibile gL o gG ①	Fusibile gL o gG ①	Fusibile gL o gG ①	Fusibile gL o gG ①
LMS25 016T - LMS25 025T LMS25 04T - LMS25 063T LMS25 1T - LMS25 1V6T	100	100	100	100	100	100	100	100	▲	▲	▲	▲
LMS25 2V5T	100	100	100	100	3	3	2,5	2,5	▲	▲	25	20
LMS25 4T	100	100	100	100	3	3	2,5	1,9	▲	▲	35	25
LMS25 6V3T	100	100	100	100	3	2,2	2,5	1,9	▲	▲	50	35
LMS25 10T	100	100	6	3	3	2,2	2,5	1,9	▲	80	50	35
LMS25 16T	6	6	4	2	2,5	1,9	2	1,5	80	80	63	35
LMS25 20T - LMS25 25T	6	4,5	4	2	2,5	1,9	2	1,5	80	80	63	50

① I fusibili vanno messi solamente se la corrente di corto circuito nel punto di installazione dell'interruttore supera il potere di interruzione dell'interruttore stesso.  
▲ Fusibile non necessario.





## NLRV.E155982 Motor Controllers, Manual

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### Motor Controllers, Manual

[See General Information for Motor Controllers, Manual](#)

**LOVATO ELECTRIC SPA**  
VIA DON E MAZZA 12  
24040 GORLE, BG ITALY

E155982

Trademark and/or Tradename:



**Auxiliary switches**, Models LMH01, LMH10, LMH11, LMH20.

**Industrial control equipment, manual motor controllers**, Models LMR32 0016, LMR32 0025, LMR32 0040, LMR32 0063, LMR32 0100, LMR32 0160, LMR32 0250, LMR32 0400, LMR32 0600, LMR32 0800, LMR32 1000, LMR32 1300, LMR32 1700, LMR32 2200, LMR32 2600, LMR32 3200; LMR Front Mounted Auxiliary Contact Block Accessory Models LMRX11 20, LMRX11 11, LMRX11 02; LMR Side Mounted Auxiliary Contact Block Accessory Models LMRX12 20, LMRX12 11, LMRX12 02; LMR Shunt Release Accessory Models LMRX16 024, LMRX16 110, LMRX16 230, LMRX16 400, LMRX 16 440; LMR Undervoltage Release Accessory Models LMRX14 230, LMRX14 400, LMRX14 440; LMR Alarm Switch for Magnetic Trip Accessory Model LMRX13 11; LMRX Handles for LMR Series, Models LMRX18 15, LMRX18 14.

**Manual motor controllers**, Types GF10, -20, GN12, -20, -25, -32, -40, -63, -125, LS25.

Types GX16, GX20, GX32, GX40 followed by other characters.

Cat. Nos. GUS030A, GUS040A, GUS060A, GUS080A, GUS100A; rotary handles, Cat. Nos. GUSH3, GUSH2; rotary extended operation shafts, Cat. Nos. GUSS090, GUSS150, GUSS200, GUSS300.

**Manual motor controller, protectors**, Models LMS25 followed by .016T, .025T, .04, .063T, .1T, .1V6T, .2V5T, .4T, .6V3T, .10T, .16T, .20T, .25T ; Models SM2A64, SM2A68, SM2A72, SM2A76, SM3A84, SM3A88, SM3A92, SM3A96.

**Shunt release**, Model LMA.

**Undervoltage release**, Model LMU.

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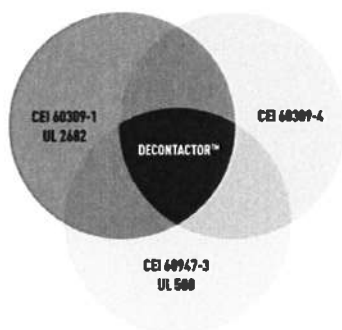
# APPLICABLE STANDARDS AND DIRECTIVES

## EUROPEAN DIRECTIVES AND INTERNATIONAL STANDARDS

### European Directives

The purpose of the European texts is to bring together the legislations in application in Member States so as to ease product circulation while ensuring the protection of both persons and property. All products marketed must comply with the Directives applicable thereto and bear the CE marking.

For socket outlets intended for use in explosive atmospheres, the ATEX Directive 94/9/EC is applicable.



([IMG/jpg/normes.jpg](#))

### European Low Voltage Directive 2006/95/CE

For socket outlets intended for industrial use, the Low Voltage Directive (LVD) No. 2006/95/EC is applicable.

The LVD sets the essential safety requirements: "Electrical equipment may be placed on the market only if, having been constructed in accordance with good engineering practice in safety matters in force in the Community, it does not endanger the safety of persons, domestic animals or property when properly installed and maintained and used in applications for which it was made.

#### The Directive requires the manufacturer to:

- design and manufacture a product in compliance with the safety requirements of the Directive (when a piece of equipment is compliant with the specifications of a product standard, it only benefits from presumed compliance with the essential safety requirements);
- monitor the assessment procedure and certify this compliance;
- draw up a 'Technical Documentation' grouping together all design and compliance assessment elements;
- manufacture appliances within the scope of an internal control system for the manufacturing process in order to guarantee their compliance with the Technical Documentation, even when calling for external services and/or products.

All MARECHAL equipment is compliant with the LVD and is manufactured within the scope of a quality control system ISO 9001.

#### CE marking

The CE marking constitutes a guarantee that MARECHAL appliances do not compromise the safety of either persons or property. In the event that MARECHAL appliances are associated with non-MARECHAL spare parts or appliances, the CE marking becomes void.

**Ministerial Order Dated 20/12/2011**

Order pertaining to the wiring and operating conditions of movable electrical apparatuses.

This order was published in the Official Journal on the 27th of January 2012. It stipulates:

- Art. 6. - It must not be possible to connect and disconnect under load the two parts of a plug, extension or connector that have a rated current above 32 A.
- Art. 8. - This order enters into application the day following its publication. All MARECHAL appliances therefore comply with this order.

**International Standards**

**MARECHAL appliances comply with the following standards:**

- **EC/EN 60309-1 Ed. 4.2:** Power outlets for industrial purposes - Part 1: general requirements
- **IEC/EN 60309-4 Ed. 1.1:** Power outlets for industrial purposes - Part 4: switched power outlets and mobile outlets with or without interlock device

**The breaking capacity of MARECHAL decontactors is tested as per the following standard:**

- **IEC/EN 60947-3:** Low-voltage appliances - part 3: switches, disconnectors, switch-disconnectors and fuse-combination units

**For specific uses, MARECHAL appliances are based on the standard:**

- **IEC 61984:** Connectors

**Foreign Standards**

**According to the situation, MARECHAL appliances comply with the following foreign standards:**

- **UL 2682 (USA):** Switch-rated plugs and receptacles
- **UL 1682 (USA) and CSA C22.2 No. 182.1-07 (Canada):** Plugs, receptacles, and cable connectors of the pin and sleeve type
- **UL 98-508 (USA):** Non-fused disconnect switches - Manual motor controller - Branch circuit disconnect
- **AS 3123 (Australia):** Plugs
- **AS 3133 (Australia):** Switches

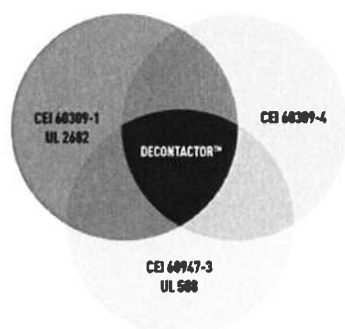
# NORMATIVE E DIRETTIVE APPLICABILI

## DIRETTIVE EUROPEE E NORMATIVE INTERNAZIONALI

### Direttive Europee

I testi europei intendono raffrontare le legislazioni degli Stati Membri, al fine di semplificare la circolazione dei prodotti, garantendo contemporaneamente la protezione personale e delle apparecchiature. Tutti i prodotti immessi sul mercato devono essere conformi alle Direttive applicabili ed essere dotati del marchio CE.

Per quanto riguarda le prese elettriche destinate all'utilizzo in atmosfere esplosive, la direttiva applicabile è la Direttiva ATEX 94/9/CE. Per le prese elettriche a uso industriale, la direttiva applicabile è la Direttiva Bassa Tensione (DBT) Nr. 2006/95/CE.



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### Direttiva Bassa Tensione Nr. 2006/95/CE

La DBT determina i requisiti essenziali per la sicurezza: «Il materiale può essere immesso sul mercato solamente se costruito in conformità alle regole dell'arte, premesso che non comprometta, previa installazione e manutenzione non difettose e utilizzo conforme all'uso preposto, la sicurezza di persone e animali domestici, nonché delle apparecchiature».

#### La Direttiva impone al produttore :

- di progettare e realizzare un prodotto conforme ai requisiti di sicurezza di cui alla Direttiva (qualora un materiale sia conforme alle disposizioni di una normativa prodotto, beneficerà solamente di una supposizione di conformità ai requisiti essenziali di sicurezza).
- di attenersi alla procedura di valutazione, quindi di attestazione di tale conformità.
- di raggruppare, in una Documentazione Tecnica, tutti gli elementi di progettazione e di valutazione di tale conformità.
- di produrre degli apparecchi nell'ambito di un sistema di controllo interno della produzione, in modo da garantirne la conformità alla Documentazione Tecnica, anche qualora si utilizzino prodotti e/o servizi esterni.

Tutte le apparecchiature MARECHAL sono conformi alla DBT e sono prodotte nell'ambito di un sistema di controllo della qualità ISO 9001.

#### Marcatura CE

Il marchio CE garantisce che le apparecchiature MARECHAL non compromettono la sicurezza di persone e apparecchiature. Nel caso in cui le apparecchiature MARECHAL siano associate ad apparecchiature o a parti di ricambio non prodotti da MARECHAL, la marcatura CE sarà invalidata.

### **Decreto Ministeriale Del 20/12/2011**

**Decreto relativo alle apparecchiature elettriche amovibili e alle relative condizioni di allacciamento e d'utilizzo.**

Questo decreto è stato pubblicato sulla Gazzetta Ufficiale, in data 27 gennaio 2012, e recita:

- Art. 6. – La congiunzione o la separazione dei due elementi che compongono prese elettriche, prolunghe e relativi connettori elettrici superiori a 32 amp., può essere effettuata solamente in assenza di carico.
- Art. 8. – Il presente decreto è applicabile a partire dal giorno successivo alla data di pubblicazione.
- Tutte le apparecchiature MARECHAL sono conformi a questo decreto.

### **Normative Internazionali**

**Le apparecchiature MARECHAL sono conformi alle seguenti normative:**

- CEI/NF EN 60309-1 Ed. 4.2: Prese elettriche ad uso industriale - parte 1: norme generali
- CEI/NF EN 60309-4 Ed. 1.1: Prese elettriche ad uso industriale - parte 4: prese elettriche e prese mobili con interruttore, con o senza dispositivo di bloccaggio

Il potere d'interruzione dei decontattori MARECHAL è testato ai sensi della seguente normativa:

- CEI/NF EN 60947-3: apparecchiatura a bassa tensione – parte 3: interruttori, sezionatori, interruttori-sezionatori e combinati fusibili

In caso di utilizzi specifici, le apparecchiature MARECHAL fanno riferimento alla normativa:

- CEI 61984: Connettori

### **Normative Estere**

**Le apparecchiature MARECHAL sono conformi, secondo il caso, alle seguenti normative estere:**

- UL 2682 (Stati Uniti): Prese elettriche con potere d'interruzione
- UL 1682 (Stati Uniti) e CSA C22.2 Nr. 182.1-07 (Canada): Prese elettriche dotate di contatti maschio e femmina
- UL 98-508 (Stati Uniti): Interruttori-sezionatori – controllo motore manuale - sezionatori
- AS 3123 (Australia): Prese elettriche
- AS 3133 (Australia): Interruttori

### **Marcatura CE: Conformità europea**

- DBT: la Direttiva Bassa Tensione riguarda la compatibilità elettromagnetica (CEM). Tale direttiva abroga la Direttiva 89/336/CEE. Il gruppo di prodotti elettrici o elettronici rientranti nel settore d'applicazione della Direttiva e disponibili sul mercato europeo deve, dal mese di luglio 2007, essere tassativamente conforme a tale nuova Direttiva.
- CEI: Commissione elettrotecnica internazionale
- NF: Normativa francese
- EN: Prefisso delle normative emesse dal Comitato europeo di normalizzazione (CEN)
- UL: Normativa americana
- CSA: Canadian Standards Association, Normativa canadese
- AS: Normativa australiana



## QLHN.E145931 Attachment Plugs, Pin-and-Sleeve Type

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### Attachment Plugs, Pin-and-Sleeve Type

[See General Information for Attachment Plugs, Pin-and-Sleeve Type](#)

#### MELTRIC CORP

4640 IRONWOOD DR  
FRANKLIN, WI 53132 USA

E145931

#### Attachment Plugs

Attachment Plugs	Ratings	Code
DS1	20A, 1/2hp 120V, 1-1/2hp 240V, 3hp 208V, 5hp 480V, 7-1/2hp 600V	a, i, j
DS3	30A, 3hp 208-240V, 10hp 480V, 600V	a, i, j
DS6	100A, 5hp 208V, 7.5hp 240V, 15hp 480V, 25hp 600V, 60A, 20hp 480V	a, i, j
DS9	100A, 600V	a, i
DS100C	100A, 5hp 208V, 7.5hp 240V, 20hp 480V, 25hp 600V	A, l, m
DR50	50A, 600V	a, d
DR100	100A, 600V	a
DR150	150A, 600V	a, d
DSR50	50A, 600V	a, d
DSR100	100A, 600V	a
DSR150	150A, 600V	a, d
DS2	200A, 480V	a, i
DR30	30A, 600V	a, d, g
DR225	225A, 480V	a, d
PN5	20A, 480V	a
PN5	30A, 600V	a, d
PN7	15A, 600V	a
PN12	5A, 600V	a
PN12	7.5, 600V	a, d
DN5	30A, 250Vdc, 600Vac	a, d
DB3	30A, 7-1/2hp 240V, 10hp 600V	a, i, j
DB6	60A, 15hp 240V, 25hp 600V, 30hp 600V	a, i, j
DB9	100A, 30hp 240hp 240V, 50hp 600V, 60hp 600V	a, i, j
PF3	300A, 600V	a, d
PF4	400A, 600V	a, d
PFQ3	300A, 600V	a, d
DSN1	20A, 1/2hp 120V, 1hp 240V, 2hp 208V, 5hp 480V	a, i, j
DSN3	30A, 7-1/2hp 480V, 15hp 600V	a, i, j
DSN6	60A, 20hp 600V	a, i, j
DR250	250A, 600V	a, d

DS100	100A, 20HP 600V, 30HP 480V, 10HP 240V, 2HP 120V	a, i, j
-------	-------------------------------------------------	---------

**Cord Connectors**

<b>Cord Connectors</b>	<b>Ratings</b>	<b>Code</b>
DS1	20A, 1/2hp 120V, 1-1/2hp 240V, 3hp 208V, 5hp 480V, 7-1/2hp 600V	a, i, g, j
DS3	30A, 3hp 208-240V, 10hp 480V, 600V	a, i, g, j
DS6	100A, 5hp 208V, 7.5hp 240V, 15hp 480V, 25hp 600V, 60A, 20hp 480V	a, i, g, j
DS9	100A, 600V	a, i, g
DR50	50A, 600V	a, g
DR100	100A, 600V	a, g
DR150	150A, 600V	a, g
DSR50	50A, 600V	a, g
DSR100	100A, 600V	a, g
DSR150	150A, 600V	a, g
DS2	200A, 480V	a, i, g
DR30	30A, 600V	a, d, g
DR225	225A, 480V	a, d, g
PN5	20A, 480V	a, g
PN5	30A, 600V	a, d, g
PN7	15A, 600V	a, g
PN12	5A, 600V	a, g
PN12	7.5, 600V	a, d, g
DN5	30A, 250Vdc, 600Vac	a, d, g
DB3	30A, 7-1/2hp 240V, 10hp 600V	a, i, g, j
DB6	60A, 15hp 240V, 20hp 600V, 25hp 600V, 30hp 600V	a, i, g, j
DB9	100A, 30hp 240V, 50hp 600V, 60hp 600V	a, i, g, j
PF3	300A, 600V	a, d, g
PF4	400A, 600V	a, d, g
PFQ3	300A, 600V	a, d, g
DSN1	20A, 1/2hp 120V, 1hp 240V, 2hp 208V, 5hp 480V	a, i, g, j
DSN3	30A, 7-1/2hp 480V, 15hp 600V	a, i, g, j
DSN6	60A, 20hp 600V	a, i, g, j
DR250	250A, 600V	a, d
DS100	100A, 20HP 600V, 30HP 480V, 10HP 240V, 2HP 120V	a, i, j

Codes:

- a. Grounding type.
- b. Provided with neutral pole.
- c. Suitable for wet and damp locations.
- d. Not intended for current interruption.
- e. Phase inverter.
- f. Special polarity.
- g. With cap (or cover).

- h. Provided with fuses.
- i. Switch-rated attachment plug for use in branch circuit switching applications.
- j. Switch-rated attachment plug for use in motor circuit switching applications.

Last Updated on 2010-02-22

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**BRONZONI**  
MOTORI ELETTRICI s.r.l.



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## Certificate of Compliance

Certificate: 1015418

Master Contract: 200655

Project: 1231546

Date Issued: July 15, 2002

Issued to: Bronzoni Motori Elettrici s.r.l.  
Via G. Baisi, 20/A  
I-42030 Ramiseto (Reggio Emilia)  
ITALY

*The products listed below are eligible to bear the CSA Mark shown  
with adjacent indicators 'C' and 'US'*



Issued by: Eric Giusti

### PRODUCTS

CLASS 4211 01 - MOTORS AND GENERATORS  
CLASS 4211 81 - MOTORS AND GENERATORS TO U.S. STANDARDS

### SUBJECT:

Three-phase asynchronous motors, Series cCSAus, 2 to 16 poles, frame size from 56 to 160, 600V or less, 60Hz, 25kW max. insulation Class 155(F).

Three-phase asynchronous motors, Series cCSAus 2/4, 4/6, 4/8 poles, 600V or less, frame size from 63 to 160; 60Hz, single winding, 22kW max. insulation class 155 (F).

Three-phase asynchronous motors, Series cCSAus, 2/6, 2/8, 4/6, 6/8 poles, frame size from 71 to 160, 600V or less, 60Hz, double windings, 9.0kW max. insulation class 155 (F).

Single-phase asynchronous motors, Series cCSAus, 2 to 6 poles, 240V or less, frame size from 56 to 132; 60Hz, 3.0kW max. insulation class 155 (F).

Single-phase asynchronous motors, Series cCSAus, 2/4, 4/8 poles, frame size 80, 240V or less, 60Hz, double windings, 0.55kW max. Insulation class 155(F).

### APPLICABLE REQUIREMENTS

CAN/CSA-C22.2 No.: 100-95 "Motor and Generator"  
UL Std. No.: 1004 "Motor and Generator"

*We hereby: **BRONZONI MOTORI ELETTRICI SRL**  
Declare, accepting sole responsibility for the manufacture of the product:  
**Asynchronous motor***

SHIPPING DOCUMENT N°	COD. ART.		MATRICOLO SERIAL NUMBER
2012-DTU-0000504	D2083A1100	Motore elettrico asincrono * TRIFASE *kW 1.1 *Poli 2 *Volt 230/400 T *Hz 50 * B5 *GR 80 *IP 55 *IS F *DIS. SM080.196	454109

*that it conforms to one of the guidelines contained in the indicated Certificate of Compliance*

Ramiseto li 20.04.2012

**BRONZONI  
MOTORI ELETTRICI S.R.L.**

## EG-Konformitätserklärung 664.30001.21

Hersteller:  
Manufacturer:

Siemens AG  
Industry Sector  
Drive Technologies Division  
Large Drives

Adresse:  
Address:

Vogelweiherstr. 1 - 15  
90441 Nürnberg  
Germany

Produktbezeichnung :  
Product designation:

Niederspannungsmotoren / Low-Voltage Motors

Typ / Type 1LE1 ..., 1PC1..., 1PC3 ...,  
1LA5 ..., 1LA6 ..., 1LA7 ..., 1LA9 ...,  
1LH5 ..., 1LH9 ...,  
1LP1 ..., 1LP3 ..., 1LP4 ... 1LP5 ..., 1LP6 ..., 1LP7 ..., 1LP9 ...,  
1PP1 ..., 1PP3 ..., 1PP4 ..., 1PP5 ..., 1PP6 ..., 1PP7 ..., 1PP9 ...,  
1LF5 ..., 1LF7..., 1LF9 ...,  
1LG4 ..., 1LG6 ...,

BG / FS: 56 M ... 315 L

Das bezeichnete Produkt stimmt mit den Vorschriften folgender Europäischer Richtlinien überein:

2006/95/EG Richtlinie des Europäischen Parlaments und des Rates zur Angleichung der Rechtsvorschriften der Mitgliedstaaten betreffend elektrische Betriebsmittel zur Verwendung innerhalb bestimmter Spannungsgrenzen

Die Übereinstimmung mit den Vorschriften dieser Richtlinien wird nachgewiesen durch die vollständige Einhaltung folgender Normen:

EN 60034-1\*): 2004

EN 60204-1: 2006

\*) mit allen relevanten Teilen / with all relevant parts

Das bezeichnete Produkt ist zum Einbau in eine andere Maschine bestimmt. Die Inbetriebnahme ist solange untersagt, bis die Konformität des Endproduktes mit der Richtlinie 2006/42/EG festgestellt ist.

Erstausgabe: 06.11.96  
Siemens Aktiengesellschaft  
Nürnberg, den 22.11.2010

  
Jürgen Amedick  
Head of Business Segment Products

  
Martin Exss  
Head of Products Quality Management

Diese Erklärung bescheinigt die Übereinstimmung mit den genannten Richtlinien, ist jedoch keine Beschaffenheits- oder Haltbarkeitsgarantie nach §443 BGB. Die Sicherheitshinweise der mitgelieferten Produktdokumentation sind zu beachten.

Kurzschlussläufermotoren fallen laut Leitfaden nicht unter die EMV-Richtlinie 2004/108/EG, somit ist keine CE-Kennzeichnung zur EMV-Richtlinie notwendig.

#### EC declaration of conformity

ENGLISH

The named product is in conformity with the requirements of the following European Directive:  
2006/95/EC Directive of the European Parliament and the Council on the harmonisation of the laws of Member States relating to electrical equipment designed for use within certain voltage limits.

Conformity with the requirements of these Directives is testified by complete adherence to the following standards:

The named product is intended for fitting in another machine. Commissioning is prohibited until such time as the end product has been proved to conform to the provisions of Directive 2006/42/EC.

This Declaration does not give assurance of properties within the meaning of product liability. The safety instructions provided in the product documentation must be observed.

According to the guideline, squirrel-cage induction motors do not fall under the directives of EMC Guideline 2004/108/EC, and thus no CE identification for the EMC guideline is required.

#### Déclaration de conformité CE

FRANÇAIS

Le produit sus-mentionné est conforme aux prescriptions des Directives Européennes suivantes :  
2006/95/CE Directive du Parlement Européen et du Conseil concernant le rapprochement des législations des États membres relatives au matériel électrique destiné à être employé dans certaines limites de tension

La conformité du produit sus-mentionné aux prescriptions de ces directives est démontrée par sa conformité intégrale aux normes suivantes :

Le produit sus-mentionné est destiné exclusivement à l'incorporation dans une autre machine. La mise en service est proscrite tant que la conformité du produit final avec la Directive 2006/42/CE n'a pas été constatée.

Cette déclaration n'est pas une assurance de qualités dans le sens de la responsabilité du produit. Les indications de sécurité de la documentation de produit sont à suivre.

Vu que, suivant la guide, les moteurs à rotor en court-circuit ne sont pas soumis à la réglementation CEM 2004/108/CE, un marquage CE ne s'avère pas nécessaire dans le cadre de la réglementation CEM.

#### Declaración de conformidad CE

ESPAÑOL

El producto designado cumple con las prescripciones de las siguientes directivas europeas:  
2006/95/CE Directiva del Parlamento Europeo y del Consejo relativa a la aproximación de las legislaciones de los Estados miembros sobre el material eléctrico destinado a utilizarse con determinados límites de tensión

La conformidad con las prescripciones de estas Directivas queda justificada por haberse cumplido totalmente las siguientes normas:

El producto designado está destinado a la incorporación en otra máquina. No se permite la puesta en servicio hasta tanto no se haya comprobado que el producto final cumple con la Directiva 2006/42/CE.

Esta declaración no garantiza características según la responsabilidad sobre productos. Han de observarse las indicaciones de seguridad en la documentación del producto.

Según la guía, no se aplica la directiva de compatibilidad electromagnética 2004/108/CE para los motores con inducido en cortocircuito, por lo cual no se requiere un marcado CE para la directiva de compatibilidad electromagnética.

#### Dichiarazione di conformità CE

ITALIANO

Il prodotto indicato soddisfa le norme delle seguenti Direttive CE:  
2006/95/CE Direttiva del Parlamento Europeo e del Consiglio concernente il ravvicinamento delle legislazioni degli Stati membri relative al materiale elettrico destinato ad essere adoperato entro taluni limiti di tensione

La conformità ai requisiti delle presenti direttive viene provata dal completo rispetto delle seguenti norme:

Il prodotto indicato è destinato ad essere integrato in un'altra macchina. Al sensi della dichiarazione del costruttore la messa in servizio non è consentita fino a quando non è stabilita la conformità del prodotto finale alla Direttiva 2006/42/CE.

La presente dichiarazione non assicura le caratteristiche del prodotto ai sensi della legge per la responsabilità del produttore. Osservare le avvertenze relative alla sicurezza contenute nella documentazione relativa al prodotto

Secondo la guida, i motori con rotore a gabbia di scoiattolo non rientrano nella direttiva 2004/108/CE sulla compatibilità elettromagnetica (EMC) e quindi non occorre nessun contrassegno CE relativo alla direttiva EMC.

#### EG-konformitetsförklaring

SVENSKA

Den märkta produkten överensstämmer med föreskrifterna i följande europeiska direktiv:  
2006/95/EG Europaparlamentets och Rådets Direktiv om harmonisering av medlemsstaternas lagstiftning om elektrisk utrustning avsedd för användning inom vissa spänningsgränser

Överensstämmelse med föreskrifterna i dessa direktiv styrks genom det absoluta respekterandet av följande normer:

Den märkta produkten är ägnad att monteras i en annan maskin. Idrifttagandet är ej tillåtet innan ändprodukten konformitet med direktiv 2006/42/EC är fastställt

Denna deklaration får inte uppfattas som försäkras om egenskaper enligt krav i produktansvar. Läs säkerhetsanvisningarna i den medlevererade produktdokumentationen.

Kortslutna motorer sorterar inte enligt handledningen under EMC-direktivet 2004/108/EC, alltså är ingen CE-märkning över EMC-direktivet nödvändig.

## Scheda Motori IEC con rotore a gabbia

Datasheet for three-phase Squirrel-Cage-Motors

**Dati per l'ordinazione** **1LA9096-2KA11-Z**  
**Ordering data:** **D31+D40**

número de cliente / Client-order-no.:  
 N. Ordine Cliente: / Order-no.:  
 il numero l'offerta numero / Offer-no.:  
 la riflessione / Remarks:

item-no. / Item-no.:  
 Commessa Nr. / Consignment-no.:  
 Progetto / Project:



### Dati elettrici / Electrical data:

tensione nominale Rated motor voltage	( 1 ) 230 VD/400 VY, 50 Hz, 460 VY, 60 Hz ( 1 ) 230 VD/400 VY, 50 Hz, 460 VY, 60 Hz					
frequenze Frequency	50 Hz		60 Hz			
Potenza nominale Rated motor power	2.20 kW		2.55 kW /			
Velocità nominale Rated motor speed	2890 1/ min		3480 1/ min			
coppia nominale Rated motor torque	7.3 Nm		7.0 Nm			
Corrente nominale (IE) Rated motor current (IE)	VD	VY		VY		
	7.65 A	4.40 A		3.85 A		
Corrente di spunto / Corrente	7.0		7.6			
coppia massima/coppia	3.5		4.4			
coppia di spunto/coppia	4.1		3.5			
	4/4	3/4	2/4	4/4	3/4	2/4
Rendimento % Efficiency %	83.2 %	83.2 %	82.2 %	85.5 %	85.5 %	84.5 %
Fattore di potenza Power factor	0.87	0.84	0.76	0.88	0.85	0.78
classe di rendimento / Efficiency	IE2		IE2			

### Dati meccanici / Mechanical data:

Il livello di pressione sonora Noise 50 Hz/60Hz	60.00 dB	64.00 dB
Momento di inerzia Moment of inertia	0.002200 kg*m²	
Cuscinetto fisso lato comando DE (AS) Bearing DE	6205 2ZC3	
Cuscinetto fisso lato opposto comando NDE	6004 2ZC3	
Cuscinetti Locating bearing	cuscinetto flottante con precarico AS (standard) Floating bearings, pre-loaded DE (standard)	
scarico della condensa Drain holes	No No	
Ingrassatore Regreasing device	No No	
il lubrificante Type of lubrication	Esso Unirex N3	
Durata del grasso: 40 °C Relubrication interval at 40 °C	40000 h	
Ingrassatore: 40 °C Quantity of grease for relubrication at 40 °C	- g	
provvisi di morsetto di terra esterno External earthing	?TAK_ABN357_001_000_1LA 00002?	
Verniciatura Paintwork	verniciatura speciale RAL 7030, grigio pietra Special paint finish, RAL7030 gray	

### con protezione tipo / Explosion protection:

tipo di protezione Type of protection	senza (standard) Without (standard)
------------------------------------------	----------------------------------------

### Condizioni ambientali / Site conditions:

Temperatura ambiente Ambient temperature	-20.0 °C - +40 °C
l'altitudine sopra il livello del mare Altitude above sea level	1000 m
Norme e prescrizioni Standards and specifications	IEC, DIN, ISO, EN, UL, CSA

### Dati generali / General data:

da grandezza Frame size	090 L
Forma costruttiva Type of construction	( 1 ) IM B5 / V1 con tettuccio protezione
Peso kg, senza accessori Weight in kg, without optional accessories	18.60 kg
Materiale della carcassa Frame material	Alluminio Aluminum
Grado di protezione Degree of protection	IP 55
Forma costruttiva Method of cooling, TEFC	IC 411
classe la vibrazione Vibration class	A ( Standard)
isolamento Insulation	155(F) a 130(B) 155(F) to 130(B)
Tipo di funzionamento Duty type	S1 = operazione continua S1 = continuous operation
e senso di rotazione Direction of rotation	bidirezionale Bi-directional

### morsettiera tramite / Terminal box:

scatola morsettiera tramite material Material of terminal box	alluminio Aluminum
tipo Type	gk 030
Filettatura della vite di contatto Terminal screw thread	M4
max. collegabile Max. cable cross-sectional area	1.50 mm²
cavo diametro di... alla... Cable diameter from ... to ...	9.00 mm - 17.00 mm
un'entrata cavi Cable entry	1xM25x1,5-1xM16x1,5
pressacavi Cable gland	2 tappi 2 plugs

### vedere esecuzione speciale / Special






D31	secondo UL con 'recognition mark' acc. to UL with 'recognition mark'
D40	secondo CSA acc. to CSA



### Werkzeugnis (2.2)

[1]

Hersteller: SIEMENS AG Bereich Automatisierungs- und Antriebstechnik Geschäftsgebiet Standardantriebe Anschrift: Siemensstr. 15 D-97615 Bad Neustadt a. d. Saale		Besteller: [2]  Kunde:
FID	VReg.	BZ-Pos:

<b>S I E M E N S</b> D-91056 Erlangen		3 -MOT 18,6 KG	1LA9096 - 2KA1 90L	EN 60034 IP55 TH.CL.F	  
50Hz 230/400V D/Y 2,2kW 7,3/4,25A cos 0,87 2890/min 220-240/380-420V D/Y 7,6-7,3/4,4-4,2 A	 	60Hz 460V Y 2,2kW 3,8A cos 0,85 3510/min NEMA Nom.Eff 85,5 % 3,0 HP			

Bemess.- Daten	Mot- Nr	Fre- quenz [3] [Hz]	Span- nung [5] [V]	Strom [6] [A]	Dreh- zahl [7] [1/min]	Aufn. P1 [9] [kW]	Abgabe P2 [8] [kW]	cos. phi	M [16] [Nm]	Eta [17] [%]	I <sub>A</sub> /I <sub>N</sub> [22]	M <sub>A</sub> /M <sub>N</sub> [23]	Pol- zahl [15]
Leerl. [10]		50	400	1,73	3000	0,180	-	-	-	-	-	-	2
Last[18]		50	400	4,27	2877	2,577	2,200	0,87	7,3	86,2	-	-	2
Anzug[19]		50	400	34,76	0	19,210	-	0,80	26,35	-	8,2	3,6	2
Messung nach EPACKT													
Leerl. [10]		60	460	1,62	3600	0,200	-	-	-	-	-	-	2
Last[18]		60	460	3,71	3496	2,559	2,200	0,87	6,01	87,8	-	-	2

Kurzschlußläufer [11] Ausführung: EN 60034 IEC 60034 [12]

Widerstand zwischen Klemmen [13]		U1-U2 V1-V2 2,24 Ohm W1-W2
----------------------------------	--	----------------------------------

Prüfung der Isolierung bestanden [14] Kühllufttemperatur max. 40 °C [20]  
bzw. nach Leistungsschildangabe [21]

English / Francais			
[1]	Test report / Fiche d'essais	[13]	Resistance between terminals / Résistance entre bornes
[2]	Reference / Référence	[14]	High-voltage test passed / L'essai diélectrique a donné satisfaction
[3]	Frequency / Fréquence	[15]	Number of poles / Nombres des pôles
[4]	Stator / Stator	[16]	Torque / Couple
[5]	Voltage / Tension	[17]	Efficiency / Rendement
[6]	Current / Courant	[18]	Load / Mesure à ... charge
[7]	Speed r.p.m. / Vitesse tr/min	[19]	Locked rotor test / Test en court circuit
[8]	Output / Puissance nominale	[20]	Cooling air temperature max. / Temp.de l'air de refroidissement max. ..°C
[9]	Input / Puissance absorbée	[21]	Or indication on name plate / Ou indique sur la plaque
[10]	No load test / Marche à vide	[22]	Starting current related to rated current
[11]	Squirrel-cage rotor / Rotor en court-circuit	[23]	Starting torque related to rated torque
[12]	According to standard / Exécution selon prescription		/ couple rotor bloqué en proportion de couple assigné

A&D SD EWN F7 Datum: 27.11. 2001 Unterschrift: gez. Michael Kirchner, Qualitätssicherung  
DV erstellt, ohne Unterschrift gültig



## NLRV.E155982 Motor Controllers, Manual

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### Motor Controllers, Manual

[See General Information for Motor Controllers, Manual](#)

#### LOVATO ELECTRIC SPA

E155982

VIA DON E MAZZA 12  
24040 GORLE, BG ITALY



Trademark and/or Tradename:

**Auxiliary switches**, Models LMH01, LMH10, LMH11, LMH20.

**Industrial control equipment, manual motor controllers**, Models LMR32 0016, LMR32 0025, LMR32 0040, LMR32 0063, LMR32 0100, LMR32 0160, LMR32 0250, LMR32 0400, LMR32 0600, LMR32 0800, LMR32 1000, LMR32 1300, LMR32 1700, LMR32 2200, LMR32 2600, LMR32 3200; LMR Front Mounted Auxiliary Contact Block Accessory Models LMRX11 20, LMRX11 11, LMRX11 02; LMR Side Mounted Auxiliary Contact Block Accessory Models LMRX12 20, LMRX12 11, LMRX12 02; LMR Shunt Release Accessory Models LMRX16 024, LMRX16 110, LMRX16 230, LMRX16 400, LMRX 16 440; LMR Undervoltage Release Accessory Models LMRX14 230, LMRX14 400, LMRX14 440; LMR Alarm Switch for Magnetic Trip Accessory Model LMRX13 11; LMRX Handles for LMR Series, Models LMRX18 15, LMRX18 14.

**Manual motor controllers**, Types GF10, -20, GN12, -20, -25, -32, -40, -63, -125, LS25.

Types GX16, GX20, GX32, GX40 followed by other characters.

Cat. Nos. GUS030A, GUS040A, GUS060A, GUS080A, GUS100A; rotary handles, Cat. Nos. GUSH3, GUSH2; rotary extended operation shafts, Cat. Nos. GUSS090, GUSS150, GUSS200, GUSS300.

**Manual motor controller, protectors**, Models LMS25 followed by .016T, .025T, .04, .063T, .1T, .1V6T, .2V5T, .4T, .6V3T, .10T, .16T, .20T, .25T ; Models SM2A64, SM2A68, SM2A72, SM2A76, SM3A84, SM3A88, SM3A92, SM3A96.

**Shunt release**, Model LMA.

**Undervoltage release**, Model LMU.

[Last Updated](#) on 2011-04-19

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## NLRV7.E155982

### Motor Controllers, Manual Certified for Canada

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### Motor Controllers, Manual Certified for Canada

[See General Information for Motor Controllers, Manual Certified for Canada](#)**LOVATO ELECTRIC SPA**

E155982

VIA DON E MAZZA 12  
24040 GORLE, BG ITALY

**Auxiliary switches**, Models LMH01, LMH10, LMH11, LMH20.

**Industrial control equipment, manual motor controllers**, Models LMR32 0016, LMR32 0025, LMR32 0040, LMR32 0063, LMR32 0100, LMR32 0160, LMR32 0250, LMR32 0400, LMR32 0600, LMR32 0800, LMR32 1000, LMR32 1300, LMR32 1700, LMR32 2200, LMR32 2600, LMR32 3200; LMR Front Mounted Auxiliary Contact Block Accessory Models LMRX11 20, LMRX11 11, LMRX11 02; LMR Side Mounted Auxiliary Contact Block Accessory Models LMRX12 20, LMRX12 11, LMRX12 02; LMR Shunt Release Accessory Models LMRX16 024, LMRX16 110, LMRX16 230, LMRX16 400, LMRX 16 440; LMR Undervoltage Release Accessory Models LMRX14 230, LMRX14 400, LMRX14 440; LMR Alarm Switch for Magnetic Trip Accessory Model LMRX13 11; LMRX Handles for LMR Series, Models LMRX18 15, LMRX18 14.

**Manual motor controllers**, Cat. Nos. GUS030A, GUS040A, GUS060A, GUS080A, GUS100A; rotary handles, Cat. Nos. GUSH3, GUSH2; rotary extended operation shafts, Cat. Nos. GUSS090, GUSS150, GUSS200, GUSS300.

Types GX16, GX20, GX32, GX40, followed by other characters.

**Manual motor controller, protectors**, Models LMS25 followed by .016T, .025T, .04, .063T, .1T, .1V6T, .2V5T, .4T, .6V3T, .10T, .16T, .20T, .25T; Models SM2A64, SM2A68, SM2A72, SM2A76, SM3A84, SM3A88, SM3A92, SM3A96.

**Shunt release**, Model LMA.

**Undervoltage release**, Model LMU.



Trademark and/or Tradename:

[Last Updated](#) on 2011-04-19

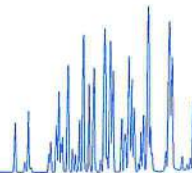
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-	Rapporto di prova N°:	EMI/ 177	del	27 aprile 2012
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-	PUNTO DI EMISSIONE:	Industrial Suction Devices V570-2,2-1400 (Test with Filter class M)			
-	Ditta Committente:	iVision s.r.l. Via Mercadante, 14 - 47841 Cattolica (RN)			
-	Ditta Destinatario:	iVision s.r.l. Via Mercadante, 14 - 47841 Cattolica (RN)			
-	Campionamento effettuato da:	Dott. Enrico Camillucci	il:	27 aprile 2012	
-	Inizio prova:	10.30	Fine prova:	11.30	
-	Parametri Fisici	Unità di misura	Valore	Limite	METODICA
-	Temperatura in condotta	°C	23,3	-	UNICHIM 10169
-	Pressione	mbar	1.012	-	UNICHIM 10169
-	Velocità in condotta	m/s	30,21	-	UNICHIM 10169
-	Diametro interno del camino	cm	10	-	UNICHIM 10169
-	Area della sezione del camino	m <sup>2</sup>	0,008	-	UNICHIM 10169
-	Portata media della condotta	m <sup>3</sup> /h	854	-	UNICHIM 10169
-	Portata media normalizzata	Nm <sup>3</sup> /h	786	-	UNICHIM 10169
-	Parametri Chimici	Unità di misura	Valore	Limite	METODICA
I	Materiale particellare	mg/Nm <sup>3</sup>	< 0,1	-	UNICHIM 10263
		Kg/h	-	-	

Dott. Enrico Camillucci

Fine del Rapporto di Prova N°:

EMI/ 177

Dott. Alberto Pagani

27 aprile 2012

**TESSUTO RASO POLIESTERE 6332**

**113819**

<b>Tessuto</b> / fabric / gewebe / tissu	<b>POLIESTERE</b>	
<b>Ordito</b> / lenghtwise / längs / en longueur	<b>Fili</b>	<b>38 al cm</b>
<b>Trama</b> / crosswise / quer / en travers	<b>Fili</b>	<b>14,5 al cm</b>
<b>Peso</b> / weight / gewicht / poids	<b>g/m2</b>	<b>295</b>
<b>Permeabilità all'aria</b> / air permeability / luftdurchlässigkeit / perméabilité à l'air	<b>l/dm2/min/200 Pa.</b>	<b>220</b>
<b>Resistenza alla rottura</b> / tensile strength / reißkraft / résistance à la rupture		
<b>in lunghezza</b> / lenghtwise / längs / en longueur	<b>N/5cm</b>	<b>&gt;2500</b>
<b>in traverso</b> / crosswise / quer / en travers	<b>N/5cm</b>	<b>&gt;2000</b>
<b>Allungamento alla rottura</b> / elongation at break / reißdehnung / allongement à la rupture		
<b>in lunghezza</b> / lenghtwise / längs / en longueur		<b>45%</b>
<b>in traverso</b> / crosswise / quer / en travers		<b>36%</b>
<b>Temperatura di esercizio</b> / operating temperature / dauerbelastung / température de travail		<b>150° C</b>
<b>Brevi punte</b> / short peaks / kurzzeitbelastung / brèves pointes		<b>160° C</b>
<b>Trattenimento fino a 10 micron</b>		

I dati tecnici sono stati determinati secondo le norme DIN. Le informazioni tecniche suelencate sono indicative e soggette a modifiche.

## Scheda Tecnica Cartuccia Filtrante in Classe M

# X600M6.5AFX10

### DESCRIPTION

The X600M6.5AFX10 filter is used as a replacement cartridge in vacuum pumps. This filter is used in compressed air and gas purification to remove oil vapours, odours, and other hydrocarbons from the air. It's completely in AISI 316 stainless steel that guarantees an optimal proof and adaptability in all external environments. All components of this product are Italian. This product is manufactured in Italy.

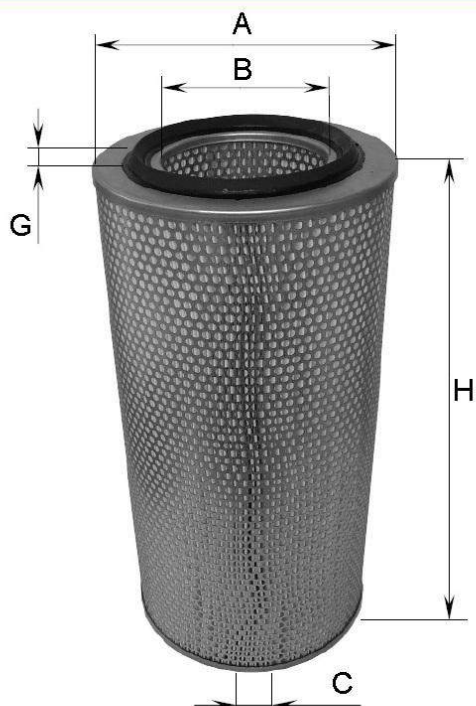
### FEATURES

- Filter Media : Inox reps
- Degree of filtration : 30  $\mu$
- Filtering surface : 6.5 m<sup>2</sup>
- NBR gasket rubber
- All metal parts are in AISI 316
- Maximum working temperature : 120 °C

### FILTER CROSS REFERENCE

O.E.M.	Original Reference
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-

### IMAGE



### APPLICATIONS

O.E.M.	Complete filters
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-

A	B	C	D	E	F	G	H
325	216	13	-	-	-	11	600



**ACFI**

ARIA COMPRESSA  
E FILTRAZIONI INDUSTRIALI s.r.l.

VIA DELLA TECNICA N. 51 - 40088 S.LAZZARO DI SAVENA BO  
R.E.A. 327090 Reg.Imp.BO 03934140371 Cap.Soc. € 10.400 I.V  
C.F. 03934140371 P.IVA IT00805221207  
Tel. +39 51 6258412 Fax +39 51 6258445  
E-MAIL [info@acfi.it](mailto:info@acfi.it) - [www.acfi.it](http://www.acfi.it)

DA 13/01/11 UNITA' LOCALE:  
VIA MENARINI N. 43 - 40054 LOC.CENTO-BUDRIO BO

Spett.le  
I-VISION

Fax n. 0541/833094

Cento di Budrio, 04/11/11

Alla c.a. Sig. GIORGIA GAGGIOLINI

Le invio le schede tecniche dei filtri K28/10 ora nuovo codice 600010-PL poliestere normale.

Troverà sia la scheda tecnica prodotto e scheda tecnica materiale.

Questo poliestere è un poliestere normale non antistatico.

Esiste tranquillamente la medesima cartuccia codificata come 600010-ANT poliestere antistatico di cui vi alleghiamo scheda tecnica prodotto e scheda tecnica materiale.

Distinti saluti.

FAROLI GIANCARLO

Scheda tecnica cod. prodotto: 600010 PL

Descrizione: cartuccia H. totale 615 mm – dm. esterno 320 mm

Flangia : poliuretano con guarnizione sez. triangolare TIPO PD – syst. Brevett.

Fondello : poliuretano con imbuto in ferro zincato

Anima interna : ferro zincato maglia tipo T10 x 7.3 x 1.6 – spessore 10/10

Materiale filtrante : Poliestere 500250

Grado di filtrazione nominale : 3 µm nominali

Superficie filtrante : 10 m<sup>2</sup>

Portata : 800 m<sup>3</sup>/h

Scheda tecnica cod. prodotto: 600010 ANT

Descrizione : cartuccia H. totale 615 mm – dm. esterno. 320 mm

Flangia : poliuretano con guarnizione sez. triangolare TIPO PD - syst. Brevett.

Fondello : poliuretano con imbuto in ferro zincato

Anima interna : ferro zincato maglia tipo T10 x 7.3 x 1.6 – spessore 10/10

Materiale filtrante : Poliestere 500240

Grado di filtrazione nominale : 3 µm nominali

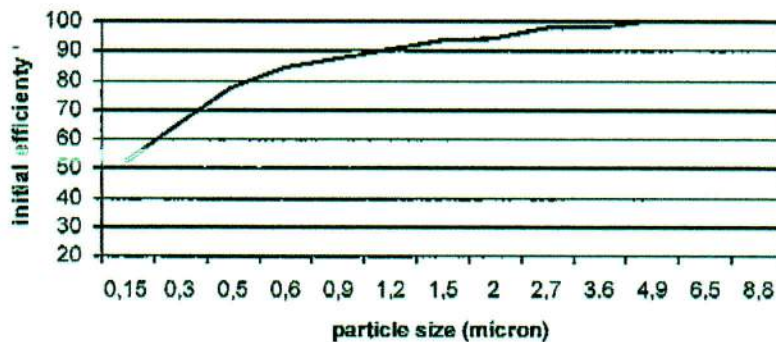
Superficie filtrante : 10 m<sup>2</sup>

Portata : 600 m<sup>3</sup>/h

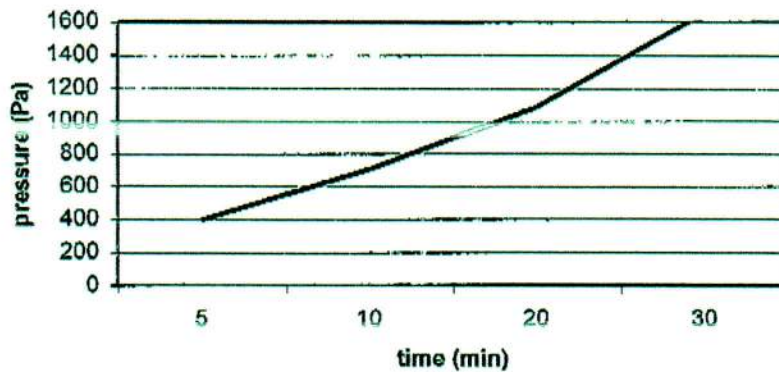


Material	100 % polyester spunbond, white
Grammage	220 g/m <sup>2</sup>
Thickness	0,70 mm
Max. tensile strength	350 N/5 cm
Elongation at max. strength	30 %
Air permeability	180 l/m <sup>2</sup> sec (200 Pa)
Max. temperature	140° C.
Bia certificate	USGC (M)

#### INITIAL EFFICIENCY



#### PRESSURE TEST



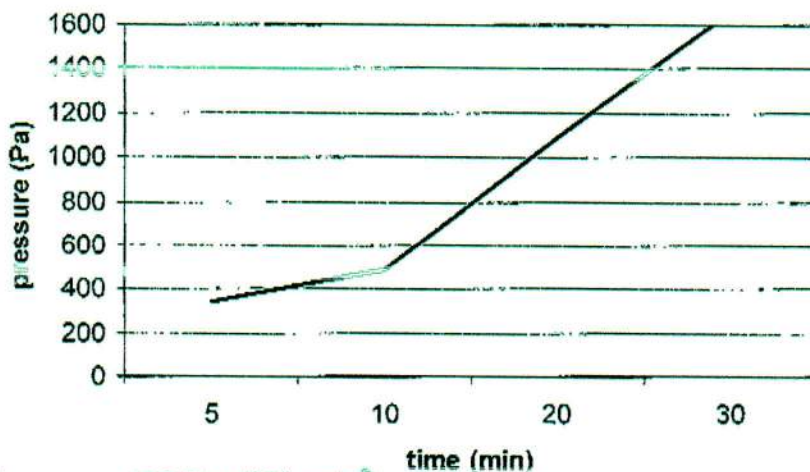
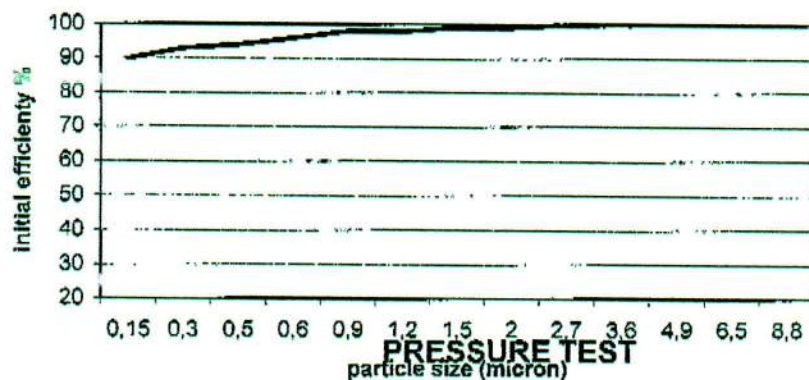
Contaminant	ISO Fine (200 mg/m <sup>3</sup> )
Air flow	200 m <sup>3</sup> /m <sup>2</sup> x h
Face velocity	0,056 m/sec
Test Area	100 cm <sup>2</sup>

For information only, do not constitute specification

## Technical data 500240

<b>Material</b>	100 % polyester spunbond aluminized, silver
<b>Grammage</b>	235 g/m <sup>2</sup>
<b>Thickness</b>	0,59 mm
<b>Max. tensile strength</b>	690 N/5 cm
<b>Elongation at max. strength</b>	30 %
<b>Air permeability</b>	180 l/mq sec (200 Pa)
<b>Max. temperature</b>	140° C.
<b>Bia certificate</b>	USGC (M)
<b>Surface resistivity</b>	< 10 <sup>6</sup> Ohms (DIN 54345-5)

### INITIAL EFFICIENTY



<b>Contaminant</b>	ISO Fine (200 mg/m <sup>3</sup> )
<b>Air flow</b>	200 m <sup>3</sup> /m <sup>2</sup> x h
<b>Face velocity</b>	0,056 m/sec
<b>Test Area</b>	100 cm <sup>2</sup>

For information only, do not constitute specification



STYLE

**T 352 SA****POLYESTER NEEDLEFELT**

AREA WEIGHT *EN 12127* 350 g/m<sup>2</sup> DENSITY 0,37 g/cm<sup>3</sup>

THICKNESS *EN ISO 9073/2* 0,95 mm PORE VOLUME 73 %

FIBER POLYESTER

COMPOSITION

SCRIM POLYESTER

FINISH HEAT SET - SURFACE GLAZING

**LONGITUDINAL****CROSS**

BREAKING LOAD *EN 29073-3* 700 N 550 N

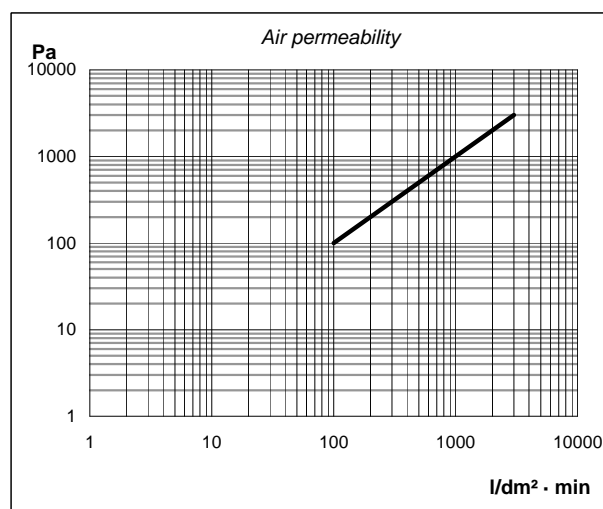
BREAKING ELONGATION *EN 29073-3* 25 % 60 %

ELONGATION at 50 N *EN 29073-3* N.A. % N.A. %

THERMAL STABILITY (SHRINKAGE) *UNI 8279/12* 2 % 1 %  
air at 150°C - 2 h

BURST STRENGTH *DIN 53861* N.A. KPa

AIR PERMEABILITY *EN ISO 9237*  
at 200 Pa 200 l/dm<sup>2</sup> • min



BIA CERTIFICATE: CLASS **L**

**FIBER PROPERTIES: POLYESTER**

OPERATING TEMPERATURE (Dry) CONTINUOUS 150°C Max

PEAKS 160°C Max

**CHEMICAL RESISTANCE**

STRONG ACIDS ○○○○  
WEAK ACIDS ○○○○

STRONG ALKALIS ○  
WEAK ALKALIS ○○

SOLVENTS ○○○○  
OXIDIZING ○○○○  
HYDROLYSIS ○

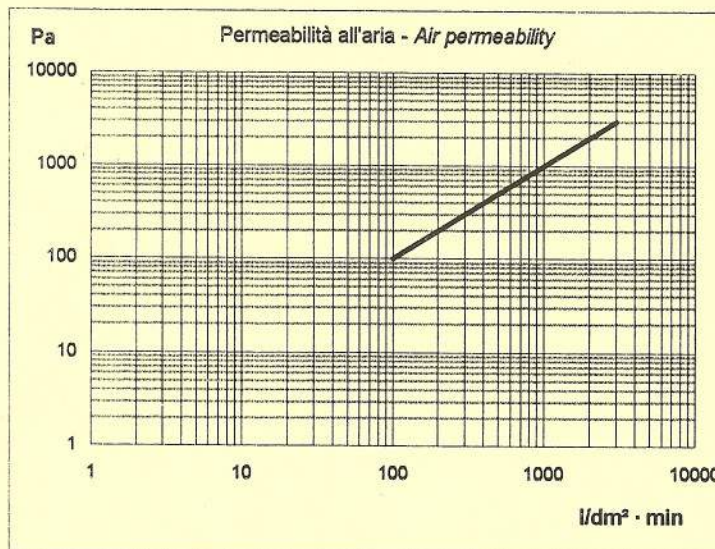
LEGEND: ○○○○ Excellent ○○○ Good ○○ Fair ○ Poor

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I dati e le caratteristiche dei feltri non sono impegnativi e possono variare in funzione dei continui miglioramenti che la Fratelli Testori Spa si riserva di apportare. Preghiamo contattare la Testori Spa in caso di uso di questi dati per la definizione di specifiche tecniche.

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PERMEABILITÀ ALL'ARIA / AIR PERMEABILITY (DIN 53887)

l/dm² · min - 200 Pa **200**

RESISTENZA A TRAZIONE / TENSILE STRENGTH

C.R.O. / LENGTHWISE  
N / 5 cm **550**

ALLUNG. / ELONGATION  
% **25**

C.R.T. / CROSSWISE  
N / 5 cm **650**

ALLUNG. / ELONGATION  
% **60**

CERTIFICATO / CERTIFICATE BIA Class: **G**

FELTRO / FELT

POLIESTERE

T 352 SA

PESO / WEIGHT  
g/m² **350**

SPESSORE / THICKNESS  
mm **0,95**

DENSITA' / DENSITY  
g/cm³ **0,37**

FIBRA / FIBER

**POLIESTERE / POLYESTER**

ARMATURA / SCRIM

**POLIESTERE / POLYESTER**

FINISSAGGIO / FINISH

**TERMOFISSATO - LISCIATURA SUPERFICIALE  
HEAT SET - SURFACE GLAZING**

PROPRIETÀ DELLA FIBRA/FIBER PROPERTIES POLIESTERE

TEMPERATURA DI UTILIZZO (SECCO) / OPERATING TEMPERATURE (DRY)

CONTINUA-CONTINUOUS max **150 °C**

PUNTA-PEAK max **160 °C**

CONTENUTO DI UMIDITÀ / MOISTURE CONTENT **0,4 %**

RESISTENZA CHIMICA / CHEMICAL RESISTANCE

Acidi forti-Strong acids	○○○	Solventi-Solvents	○○○
Acidi deboli-Weak acids	○○○○	Ossidanti-Oxidizing	○○○○
Alcali forti-Strong alkalis	○	Idrolisi-Hydrolysis	○
Alcali deboli-Weak alkalis	○○		

LEGENDA: ○○○○Eccellente-Excellent ○○○Buona-Good ○○Bassa-Fair ○Insufficiente-Poor



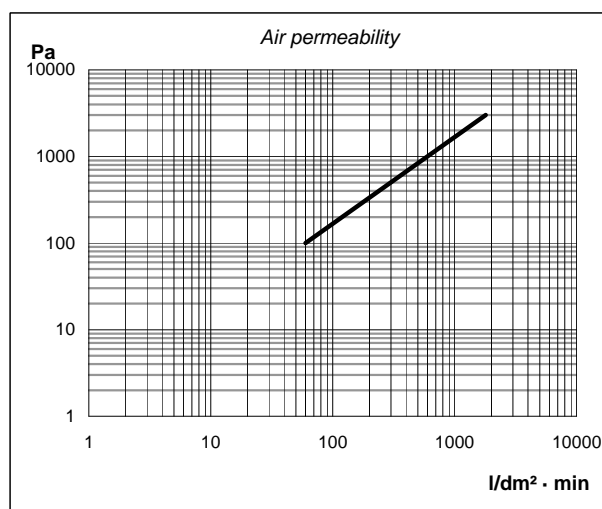
STYLE **T 502 KLEENTES**

## POLYESTER NEEDLEFELT

AREA WEIGHT	EN 12127	<u>500</u>	g/m <sup>2</sup>	DENSITY	<u>0,36</u>	g/cm <sup>3</sup>
THICKNESS	EN ISO 9073/2	<u>1,40</u>	mm	PORE VOLUME	<u>74</u>	%
FIBER	<u>POLYESTER</u>					
COMPOSITION						
SCRIM	<u>POLYESTER</u>					
FINISH	<u>HEAT SET - SURFACE GLAZING - KLEENTES TREATMENT (FLUORINATED RESINS)</u>					

		LONGITUDINAL	CROSS
BREAKING LOAD	EN 29073-3	<u>700</u> N	<u>950</u> N
BREAKING ELONGATION	EN 29073-3	<u>27</u> %	<u>75</u> %
ELONGATION at 50 N	EN 29073-3	<u>N.A.</u> %	<u>N.A.</u> %
THERMAL STABILITY (SHRINKAGE) air at 150°C - 2 h	UNI 8279/12	<u>2</u> %	<u>1</u> %
BURST STRENGTH	DIN 53861	<u>N.A.</u> KPa	

AIR PERMEABILITY 120 EN ISO 9237  
at 200 Pa l/dm<sup>2</sup> • min



### FIBER PROPERTIES: POLYESTER

OPERATING TEMPERATURE (Dry)	CONTINUOUS	150°C Max
	PEAKS	160°C Max

### CHEMICAL RESISTANCE

STRONG ACIDS	○○○	STRONG ALKALIS	○	SOLVENTS	○○○
WEAK ACIDS	○○○○	WEAK ALKALIS	○○	OXIDIZING	○○○○
				HYDROLYSIS	○

LEGEND: ○○○○ Excellent    ○○○ Good    ○○ Fair    ○ Poor

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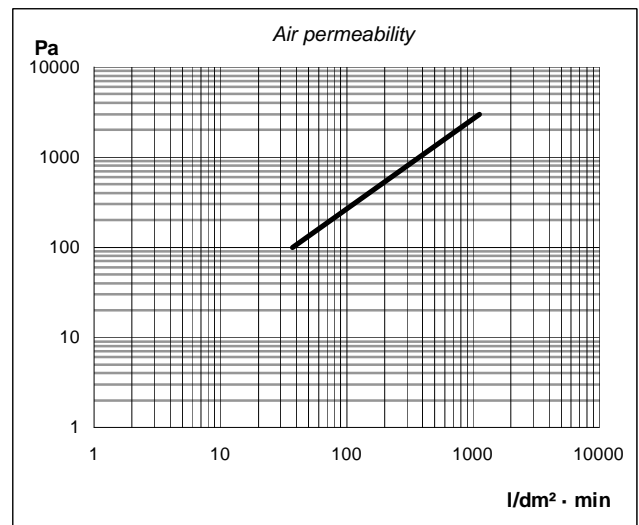
STYLE

**T 554 REL.****TETRATEX® POLYESTER NEEDLEFELT**AREA WEIGHT *EN 12127* 500 g/m<sup>2</sup>DENSITY 0,26 g/cm<sup>3</sup>THICKNESS *EN ISO 9073/2* 1,90 mmPORE VOLUME 81 %FIBER **POLYESTER**

COMPOSITION

SCRIM **POLYESTER**FINISH **TETRATEX® R MICROPOROUS PTFE MEMBRANE****LONGITUDINAL****CROSS**BREAKING LOAD *EN 29073-3* 800 N800 NBREAKING ELONGATION *EN 29073-3* N.A. %N.A. %ELONGATION at 50 N *EN 29073-3* \_\_\_\_\_ %

\_\_\_\_\_ %

THERMAL STABILITY (SHRINKAGE) *UNI8279/12* 3 %  
air at 177°C - 24 h3 %BURST STRENGTH *DIN 53861* N.A. kPaAIR PERMEABILITY *EN ISO 9237*  
at 200 Pa 75 l/dm<sup>2</sup> • min**FIBER PROPERTIES: POLYESTER**OPERATING TEMPERATURE (Dry) CONTINUOUS 150°C Max  
PEAKS 160°C Max**CHEMICAL RESISTANCE**STRONG ACIDS ○○○○  
WEAK ACIDS ○○○○STRONG ALKALIS ○  
WEAK ALKALIS ○○SOLVENTS ○○○○  
OXIDIZING ○○○○  
HYDROLYSIS ○

LEGEND: ○○○○ Excellent ○○○ Good ○○ Fair ○ Poor

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STYLE

**T 554 TTX****TETRATEX® POLYESTER NEEDLEFELT**

AREA WEIGHT *EN 12127* 550 g/m<sup>2</sup> 16,3 oz/yd<sup>2</sup> DENSITY 0,28 g/cm<sup>3</sup>

THICKNESS *EN ISO 9073/2* 2,00 mm 0,079 in PORE VOLUME 80 %

FIBER **POLYESTER**

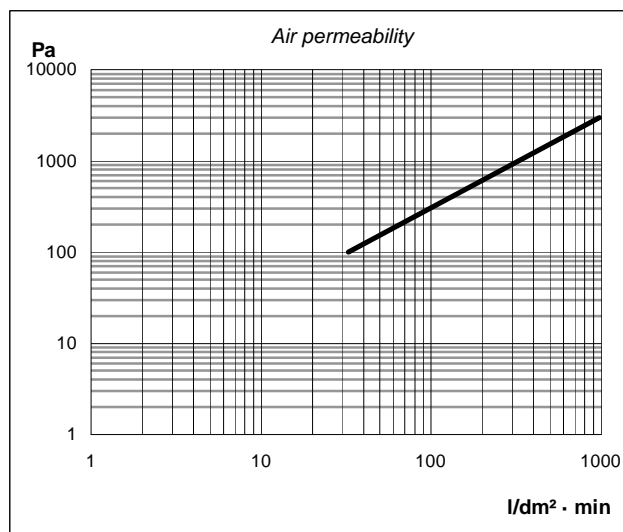
COMPOSITION

SCRIM **POLYESTER**

FINISH **TETRATEX® EXTREME MICROPOROUS PTFE MEMBRANE**

		LONGITUDINAL	CROSS
TENSILE STRENGTH (5 cm)	<i>EN 29073-3</i>	≥ <u>1500</u> N <u>330</u> lbs/2"	≥ <u>1000</u> N <u>220</u> lbs/2"
ELONGATION	<i>EN 29073-3</i>	≤ <u>N.A.</u> %	≤ <u>N.A.</u> %
ELONGATION at 50 N	<i>EN 29073-3</i>	≤ <u>N.A.</u> %	≤ <u>N.A.</u> %
THERMAL STABILITY (SHRINKAGE) air at 177°C - 24 h	<i>UNI8279/12</i>	≤ <u>3</u> %	≤ <u>3</u> %
BURST STRENGTH	<i>DIN 53861</i>	≥ <u>N.A.</u> kPa	≥ <u>N.A.</u> psi

AIR PERMEABILITY *EN ISO 9237*  
at 200 Pa 65 l/dm<sup>2</sup> • min  
13,33 cfm @ 1/2" H<sub>2</sub>O

BIA CERTIFICATE: CLASS **M****FIBER PROPERTIES: POLYESTER**

OPERATING TEMPERATURE (Dry)	CONTINUOUS	150°C Max	302 °F Max
	PEAKS	160°C Max	320 °F Max

**CHEMICAL RESISTANCE**

STRONG ACIDS	○○○	STRONG ALKALIS	○	SOLVENTS	○○○
WEAK ACIDS	○○○○	WEAK ALKALIS	○○	OXIDIZING	○○○○
				HYDROLYSIS	○

LEGEND: ○○○○ Excellent    ○○○ Good    ○○ Fair    ○ Poor

All data and characteristics are not binding and may vary depending on the constant improvements that Testori Spa reserves itself to introduce.  
Please contact Testori Spa before using these data for technical specification definition.



STYLE

**T 452 NOVATES****POLYESTER NEEDLEFELT**

AREA WEIGHT *EN 12127* 470 g/m<sup>2</sup> DENSITY 0,38 g/cm<sup>3</sup>

THICKNESS *EN ISO 9073/2* 1,25 mm PORE VOLUME 73 %

FIBER POLYESTER

COMPOSITION

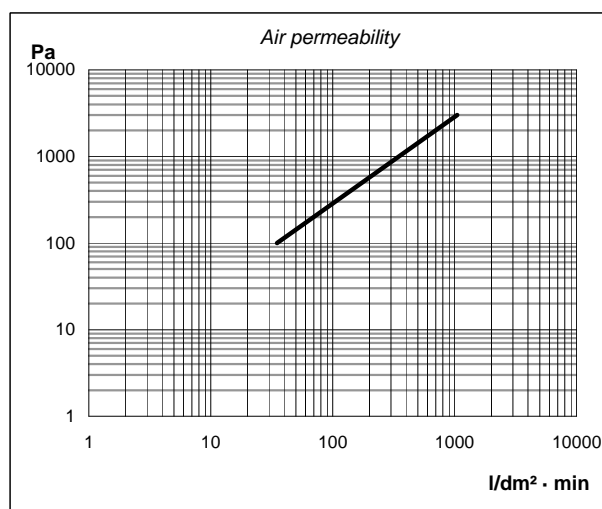
SCRIM POLYESTER

FINISH

HEAT SET - SURFACE GLAZING - NOVATES COATING (POLYURETHANE)

		LONGITUDINAL	CROSS
BREAKING LOAD	<i>EN 29073-3</i>	<u>720</u> N	<u>800</u> N
BREAKING ELONGATION	<i>EN 29073-3</i>	<u>27</u> %	<u>70</u> %
ELONGATION at 50 N	<i>EN 29073-3</i>	<u>N.A.</u> %	<u>N.A.</u> %
THERMAL STABILITY (SHRINKAGE) air at 150°C - 2 h	<i>UNI 8279/12</i>	<u>2</u> %	<u>1</u> %
BURST STRENGTH	<i>DIN 53861</i>	<u>N.A.</u> KPa	

AIR PERMEABILITY *EN ISO 9237*  
at 200 Pa 70 l/dm<sup>2</sup> • min

BIA CERTIFICATE: CLASS **M****FIBER PROPERTIES: POLYESTER**

OPERATING TEMPERATURE (Dry) CONTINUOUS 150°C Max  
PEAKS 160°C Max

**CHEMICAL RESISTANCE**

STRONG ACIDS ○○○○  
WEAK ACIDS ○○○○

STRONG ALKALIS ○  
WEAK ALKALIS ○○

SOLVENTS ○○○○  
OXIDIZING ○○○○  
HYDROLYSIS ○

LEGEND: ○○○○ Excellent ○○○ Good ○○ Fair ○ Poor

*All data and characteristics are not binding and may vary depending on the constant improvements that Testori Spa reserves itself to introduce. Please contact Testori Spa before using these data for technical specification definition.*



STYLE

**T 452 NOVATES****POLYESTER NEEDLEFELT**

AREA WEIGHT *EN 12127* 470 g/m<sup>2</sup> DENSITY 0,38 g/cm<sup>3</sup>

THICKNESS *EN ISO 9073/2* 1,25 mm PORE VOLUME 73 %

FIBER POLYESTER

COMPOSITION

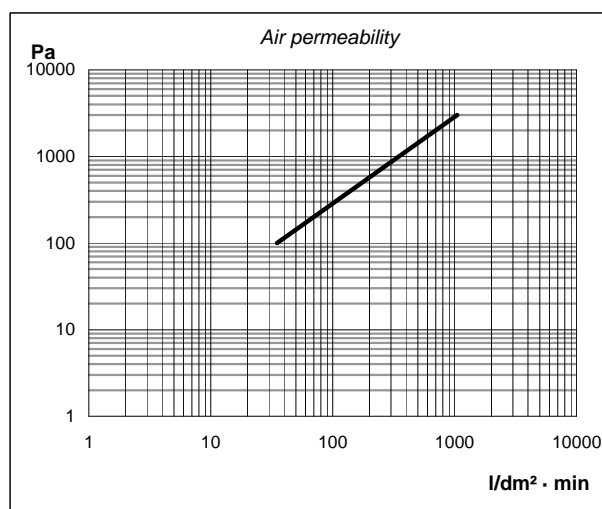
SCRIM POLYESTER

FINISH

HEAT SET - SURFACE GLAZING - NOVATES COATING (POLYURETHANE)

		LONGITUDINAL	CROSS
BREAKING LOAD	<i>EN 29073-3</i>	<u>720</u> N	<u>800</u> N
BREAKING ELONGATION	<i>EN 29073-3</i>	<u>27</u> %	<u>70</u> %
ELONGATION at 50 N	<i>EN 29073-3</i>	<u>N.A.</u> %	<u>N.A.</u> %
THERMAL STABILITY (SHRINKAGE) air at 150°C - 2 h	<i>UNI 8279/12</i>	<u>2</u> %	<u>1</u> %
BURST STRENGTH	<i>DIN 53861</i>	<u>N.A.</u> KPa	

AIR PERMEABILITY *EN ISO 9237*  
at 200 Pa 70 l/dm<sup>2</sup> • min

BIA CERTIFICATE: CLASS **M****FIBER PROPERTIES: POLYESTER**

OPERATING TEMPERATURE (Dry) CONTINUOUS 150°C Max  
PEAKS 160°C Max

**CHEMICAL RESISTANCE**

STRONG ACIDS ○○○○  
WEAK ACIDS ○○○○

STRONG ALKALIS ○  
WEAK ALKALIS ○○

SOLVENTS ○○○○  
OXIDIZING ○○○○  
HYDROLYSIS ○

LEGEND: ○○○○ Excellent ○○○ Good ○○ Fair ○ Poor

*All data and characteristics are not binding and may vary depending on the constant improvements that Testori Spa reserves itself to introduce. Please contact Testori Spa before using these data for technical specification definition.*

## Technical Data Sheet

**Product Code: #5102 Tetratex® Release Polyester Felt**

<b>Fibre Composition</b>	100% Polyester
<b>Scrim Composition</b>	100% Polyester Multi-Filament
<b>Weight (g/m<sup>2</sup>)</b> <b>+/-8%</b>	500
<b>Thickness (mm)</b> <b>+/-15%</b>	1.9
<b>Air Permeability (l/dm<sup>2</sup>/min @ 200 Pa)</b>	50-100
<b>Continuous Service Temperature (° C)</b>	150
<b>Minimum Mullen Burst (kg/cm<sup>2</sup>)</b>	30
<b>Minimum Break Strength (N/50mm)</b>	
Warp	800
Weft	800
<b>Maximum Shrinkage Unrestricted %</b>	3 / 24 Hours
<b>Dry Heat (° C)</b>	177
<b>Finish</b>	Tetratex® Release ePTFE Membrane
<b>Efficiency Certification</b>	B.G.I.A Accredited

Please note value given may be subject to change without notice.  
Please consult Donaldson Filter Components Limited before using these values for design or specification.  
Revised November 2007  
Please note this data sheet will supersede any previous version

**Donaldson Filter Components Ltd**

7 The Parks  
Newton Le Willows  
WA12 0JQ England

Tel: +44 (0) 1942 711711  
Fax: +44 (0) 1942 711571  
E-mail: [membranes-europe@donaldson.com](mailto:membranes-europe@donaldson.com)

Tetratex® is a registered Trademark of Donaldson Co.Inc

Visit us at : [www.donaldson.com](http://www.donaldson.com)



# MULTIPOLARI MULTICORE CABLES

STYLE 2587 / 2516 - CSA



POSA FISSA  
POTENZA e CONTROLLO  
ANTIOLIO e AUTOESTINGUENTI  
STATIC INSTALLATION  
POWER and CONTROL  
OIL-RESISTANT and SELF-EXTINGUISHING

## CARATTERISTICHE FISICHE PHYSICAL PROPERTIES



### Formazione dei conduttori:

#### Conductor lay-up:

CEI 20-29 IEC 60228 Classe / Class 5 – VDE 0295



### Isolamento dei conduttori:

#### Conductor insulation:

PVC Classe 43 per UL1581 e CSA 22.2 n°210

Colorazione: conduttori neri numerati + conduttore di terra giallo/verde (su richiesta blu o rosso numerate)

PVC Class 43 for UL1581 and CSA 22.2 n° 210

Colour: black numbered conductors + yellow/green ground conductor (available also blue or red, numbered, on demand)



### Schermo sulla riunitura (OPZIONALE):

#### Overall shield (OPTIONAL):

Copertura ≥ 85% EMC 89/336

Coverage ≥ 85% EMC 89/336



### Guaina esterna:

#### Outer jacket:

PVC Classe 43 per UL1581 e CSA 22.2 n°210

Colore: GRIGIO RAL 7001

PVC Class 43 for UL 1581 and CSA 22.2 n° 210

Colour: GREY RAL 7001



### Temperatura di esercizio:

#### Working temperature:

Posa fissa / Static installation:

-40°C / +90°C (STYLE 2587)

-40°C / +105°C (STYLE 2516)

Durante l'installazione / During installation:

-5°C / +80°C

## CARATTERISTICHE ELETTRICHE ELECTRICAL PROPERTIES



### Tensione di esercizio:

#### Working voltage:

600V (UL-CSA)



### Tensione di prova:

#### Test voltage:

4000 V

### Tensione di corto circuito:

#### SPARK test voltage:

> 12000 V



## CARATTERISTICHE DINAMICHE DYNAMIC PROPERTIES



### Raggio minimo di curvatura:

#### Minimum bending radius:

Non schermati: 4 x Ø cavo

Unshielded: 4 x Ø cable

Schermati: 6 x Ø cavo

Shielded: 6 x Ø cable

## NORME DI COSTRUZIONE MANUFACTURING REQUIREMENTS



### Normative di riferimento:

#### Reference standards:

UL 1581



### Omologazioni:

#### Approvals:

UL Recognized (UL o / or cULUS) / CSA

AWM STYLE 2587 90°C 600V - CSA I/II A/B - FT1

AWM STYLE 2516 105°C 600V - CSA I/II A/B - FT1



### Comportamento al fuoco:

#### Fire behaviour:

(Autoestinguente / Self-extinguishing)

VW-1 (UL); FT1(CSA); IEC 60332.1 (EU)



### Resistenza agli olii industriali e idrocarburi:

#### Industrial oil and hydrocarbons resistance:

UL 1581; ASTM n°2; IRM 902; IEC 60811-2-1





STYLE

**TW 400 SA****ANTISTATIC POLYESTER NEEDLEFELT**

AREA WEIGHT *EN 12127* 400 g/m<sup>2</sup> DENSITY 0,32 g/cm<sup>3</sup>

THICKNESS *EN ISO 9073/2* 1,25 mm PORE VOLUME 77 %

FIBER POLYESTER

COMPOSITION

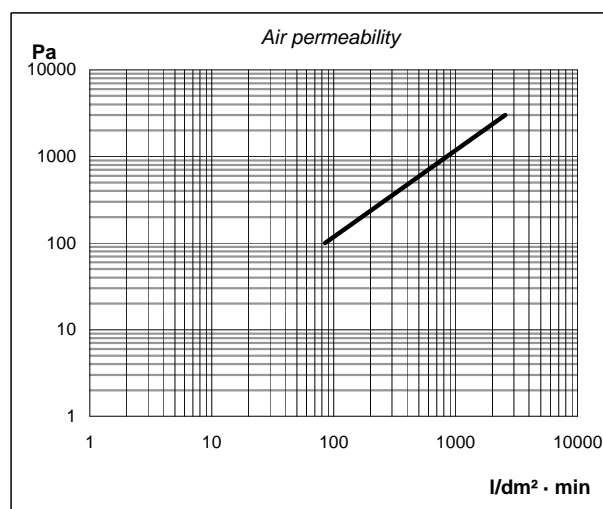
SCRIM POLYESTER/INOX

FINISH HEAT SET - SURFACE GLAZING

**LONGITUDINAL****CROSS**

BREAKING LOAD	<i>EN 29073-3</i>	<u>800</u> N	<u>1000</u> N
BREAKING ELONGATION	<i>EN 29073-3</i>	<u>25</u> %	<u>49</u> %
ELONGATION at 50 N	<i>EN 29073-3</i>	<u>N.A.</u> %	<u>N.A.</u> %
THERMAL STABILITY (SHRINKAGE) air at 150°C - 2 h	<i>UNI 8279/12</i>	<u>2</u> %	<u>1</u> %
BURST STRENGTH	<i>DIN 53861</i>	<u>N.A.</u> KPa	

AIR PERMEABILITY *EN ISO 9237*  
at 200 Pa 170 l/dm<sup>2</sup> • min



SURFACE RESISTIVITY:  $\leq 10^4$  ohm (DIN 54345/1-5)

**FIBER PROPERTIES: POLYESTER**

OPERATING TEMPERATURE (Dry) CONTINUOUS 150°C Max  
PEAKS 160°C Max

**CHEMICAL RESISTANCE**

STRONG ACIDS ○○○○  
WEAK ACIDS ○○○○

STRONG ALKALIS ○  
WEAK ALKALIS ○○

SOLVENTS ○○○○  
OXIDIZING ○○○○  
HYDROLYSIS ○

LEGEND: ○○○○ Excellent ○○○ Good ○○ Fair ○ Poor

*All data and characteristics are not binding and may vary depending on the constant improvements that Testori Spa reserves itself to introduce. Please contact Testori Spa before using these data for technical specification definition.*



# PRÜFSTELLE TEXTIL

Durch die DGA Deutsche Gesellschaft für Akkreditierung mbH - vertreten im Deutschen Akkreditierungsrat - akkreditiertes Prüflaboratorium. Die Akkreditierung gilt für die in der Urkunde aufgeführten Prüfverfahren.



Deutscher  
Akkreditierungs-  
Rat  
DGA-PL-1167.99



SÄCHSISCHES  
TEXTIL  
FORSCHUNGS  
INSTITUT e.V.

Durch die Zentralstelle der Länder für Sicherheitstechnik (ZLS) akkreditierte Prüfstelle für Produkte im Sinne der EG-Richtlinie für Persönliche Schutzausrüstungen 89/686/EWG und des §9 Abs. 2 Gerätesicherheitsgesetz



Von der Federation Internationale de L'Automobile (FIA) Paris zugelassene Stelle zur Prüfung von hitze- und flammresistenter Schutzkleidung für Auto-Rennfahrer gemäß Standard FIA 8856-2000

## UNTERSUCHUNGSBERICHT | TESTREPORT

**Order No STFI**

**20111312-1**

**Date of report:  
Testing officers**

**2011-07-15  
Vogel / Hachmeister (PS 205/11-1)**

**Applicant:**

**TESTORI S.p.A.  
Largo A. Testori n. 5  
20026 Novate Milanese  
ITALY**

**Testing application:**

**as of: 2011-06-20  
order received on: 2011-06-21  
sample received on: 2011-06-21**

**Test specimen:** Needlefelt, white

Marking by applicant:	Code:
Sample : TW 400 SA	PS 205/11-1

Sampling was carried out by applicant. The test department is not informed about the sampling procedure.

**Test program:** (1) Surface resistance  $R_{OT}$  and Vertical resistance  $R_{DT}$  acc. to DIN 54345-1

(2) Electrical resistance of stripes acc. to DIN 54345-5

**Test results:**

**(1) Surface resistance  $R_{OT}$  and Vertical resistance  $R_{DT}$  acc. to DIN 54345-1**

Sample	Surface resistance $R_{OT}$ acc. to DIN 54345-1	Vertical resistance $R_{DT}$ acc. to DIN 54345-1
Sample TW 400 SA  (PS 205/11-1)	Mean: $1,4 \times 10^3 \Omega$  Single Values:  $0,6 \times 10^3 \Omega$ $0,7 \times 10^3 \Omega$ $0,7 \times 10^3 \Omega$ $3,4 \times 10^3 \Omega$ $5,8 \times 10^3 \Omega$	Mean: $0,8 \times 10^3 \Omega$  Single Values:  $0,5 \times 10^3 \Omega$ $1,0 \times 10^3 \Omega$ $0,6 \times 10^3 \Omega$ $0,8 \times 10^3 \Omega$ $1,1 \times 10^3 \Omega$

Test conditions: (23±1) °C / (25±2) % relative humidity  
 Air-condition: 24 h  
 Pretreatment: no  
 Test voltage: 10 V / 100 V  
 Resistance Meter: Megger BM 80/2

**(2) Electrical resistance of stripes acc. to DIN 54345-5**

<b>Sample TW 400 SA (PS 205/11-1)</b>		
Measuring length	Electrical resistance of stripes acc. to DIN 54345-5	
	(longitudinal direction)	(transversal direction)
1 cm	Geometric Mean: $0,5 \times 10^3 \Omega$ Single Values: $0,4 \times 10^3 \Omega$ ; $1,9 \times 10^3 \Omega$ ; $0,3 \times 10^3 \Omega$ ; $0,5 \times 10^3 \Omega$ ; $0,3 \times 10^3 \Omega$	Geometric Mean: $0,6 \times 10^3 \Omega$ Single Values: $0,4 \times 10^3 \Omega$ ; $0,6 \times 10^3 \Omega$ ; $1,8 \times 10^3 \Omega$ ; $0,3 \times 10^3 \Omega$ ; $0,7 \times 10^3 \Omega$
2 cm	Geometric Mean: $0,8 \times 10^3 \Omega$ Single Values: $1,1 \times 10^3 \Omega$ ; $0,6 \times 10^3 \Omega$ ; $0,7 \times 10^3 \Omega$ ; $0,9 \times 10^3 \Omega$ ; $1,0 \times 10^3 \Omega$	Geometric Mean: $0,6 \times 10^3 \Omega$ Single Values: $0,6 \times 10^3 \Omega$ ; $1,2 \times 10^3 \Omega$ ; $0,2 \times 10^3 \Omega$ ; $0,8 \times 10^3 \Omega$ ; $0,6 \times 10^3 \Omega$
5 cm	Geometric Mean: $1,9 \times 10^3 \Omega$ Single Values: $2,0 \times 10^3 \Omega$ ; $1,9 \times 10^3 \Omega$ ; $1,5 \times 10^3 \Omega$ ; $1,4 \times 10^3 \Omega$ ; $2,7 \times 10^3 \Omega$	Geometric Mean: $2,1 \times 10^3 \Omega$ Single Values: $1,4 \times 10^3 \Omega$ ; $1,7 \times 10^3 \Omega$ ; $2,9 \times 10^3 \Omega$ ; $2,4 \times 10^3 \Omega$ ; $2,2 \times 10^3 \Omega$
10 cm	Geometric Mean: $3,7 \times 10^3 \Omega$ Single Values: $5,3 \times 10^3 \Omega$ ; $4,8 \times 10^3 \Omega$ ; $2,4 \times 10^3 \Omega$ ; $3,1 \times 10^3 \Omega$ ; $3,6 \times 10^3 \Omega$	Geometric Mean: $3,1 \times 10^3 \Omega$ Single Values: $3,3 \times 10^3 \Omega$ ; $2,8 \times 10^3 \Omega$ ; $3,1 \times 10^3 \Omega$ ; $3,4 \times 10^3 \Omega$ ; $3,1 \times 10^3 \Omega$
25 cm	Geometric Mean: $8,9 \times 10^3 \Omega$ Single Values: $5,6 \times 10^3 \Omega$ ; $6,7 \times 10^3 \Omega$ ; $9,7 \times 10^3 \Omega$ ; $1,4 \times 10^4 \Omega$ ; $1,1 \times 10^4 \Omega$	Geometric Mean: $1,1 \times 10^4 \Omega$ Single Values: $9,4 \times 10^3 \Omega$ ; $2,4 \times 10^4 \Omega$ ; $7,6 \times 10^3 \Omega$ ; $6,8 \times 10^3 \Omega$ ; $1,2 \times 10^4 \Omega$

Test conditions: (23±1) °C / (25±2) % relative humidity  
 Air-condition: 24 h  
 Pretreatment: no  
 Test voltage: 10 V / 100 V  
 Resistance Meter: Megger BM 80/2  
 Stripe dimension: 30 x 5 cm



Remarks:

The test results refer to the specimen delivered. This test report should not be published in parts. It consists of 4 pages.

The testing period is defined as timeframe between receipt of samples and issue date of test report.

*M. Mägel*

Dr. Matthias Mägel  
Head of the testing department



*C. Vogel*

Dipl.-Ing. Christian Vogel  
Responsible testing officer

Datum/Date: 17.04.2012 Tob/Sol

**PRÜFZEUGNIS**  
**TEST CERTIFICATE**

Nr./No.: 201223170/6210

- |          |                                                  |                                                                                                                                                  |
|----------|--------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1</b> | <b>Auftraggeber/<br/>Customer</b>                | TESTORI S.p.A<br>Largo A. Testori 5<br>I-20026 Novate Milanese / Italien                                                                         |
| <b>2</b> | <b>Prüfmuster/<br/>Test specimen</b>             | Filtermaterial                                                                                                                                   |
| 2.1      | Hersteller/<br>Manufacturer                      | TESTORI S.p.A                                                                                                                                    |
| 2.2      | Bauart, Bezeichnung/<br>Type, designation        | Filtermaterial 1-lagig / TW 450SC                                                                                                                |
|          | Kennzeichnung/<br>Marking                        | TW 450 SC                                                                                                                                        |
| 2.3      | Bestimmungsgemäße<br>Verwendung/<br>Intended use | Entsprechend den IFA-Grundsätzen zur Prüfung von Filtern für<br>die Verwendung in staubbeseitigenden Maschinen und Geräten<br>(Ausgabe 01/2010). |
| 2.4      | Datum der Herstellung/<br>Date of fabrication    | 01/2012                                                                                                                                          |
| 2.5      | Weitere Angaben/<br>Further details              | s. Prüfprotokoll                                                                                                                                 |



**3 Prüfung/  
Testing**

- 3.1 Art der Prüfung/  
Type of test Typprüfung
- 3.2 Datum der Prüfung/  
Date of testing März 2012
- 3.3 Prüfverfahren, -grundlagen/  
Test method, requirements DIN EN 60335-2-69:2008; IFA-Grundsätze zur Prüfung von Filtern für die Verwendung in staubbeseitigenden Maschinen und Geräten (Ausgabe 01/2010).

**4 Beurteilung, Eignung/  
Assessment, suitability  
(Besondere Hinweise/  
Special remarks)**

Das Filtermaterial TW 450SC erfüllt bei einer Filterflächenbelastung von  $360 \text{ m}^3/\text{m}^2\cdot\text{h}$  entsprechend einer Filteranströmgeschwindigkeit von  $0,10 \text{ m/s}$  die Anforderungen der DIN EN 60335-2-69 an Filter zum Einsatz in staubbeseitigenden Maschinen und Geräten der Staubklasse "M".

**Besondere Hinweise:**

Dieses Prüfzeugnis gilt nur für das Filtermaterial mit der Anströmseite: gekennzeichnete Seite.

Eine Beurteilung der Arbeitssicherheit der gesamten Staubabscheideeinrichtung ist auf Grund dieses Prüfzeugnisses nicht zulässig.

**5 Gültigkeit des Prüfzeugnisses/  
Validity of Test Certificate**

Dieses Prüfzeugnis gilt, solange die zugrundeliegenden sicherheitstechnischen Anforderungen (3.3) gelten, für alle mit dem Prüfmuster identischen Erzeugnisse, die gefertigt werden bis zum:

*As long as the underlying safety-technical requirements (3.3) are in force, the present Test Certificate applies to all products equal to the test specimen and manufactured at the latest on:*

16.04.2015

Die Identität der Erzeugnisse mit dem Prüfmuster wird von der Prüfstelle nicht überwacht.  
*Conformity with the test specimen will not be verified by the testing institute.*

Eine Verlängerung der Gültigkeitsdauer ist auf Antrag möglich (**bis zu zweimal**).  
*Period of validity may be extended upon request.*

**6 Allgemeine Hinweise/  
General remarks**

Dieses Prüfzeugnis besteht aus  
*The present Test Certificate consists of*

5

Seiten  
*Pages.*

Die Seiten 1 bis 3 enthalten das Gesamtergebnis der Prüfung, sie dürfen nur ungekürzt veröffentlicht werden. Zum vollständigen Prüfzeugnis gehört das Prüfprotokoll, aus dem die Einzelangaben ersichtlich sind.

*Pages 1 to 3 indicate the overall test result; they shall only be published with the full wording being quoted. The complete Test Certificate also includes the test protocol containing all pertinent details.*

Dieses Prüfzeugnis berechtigt **n i c h t** zur Verwendung des GS-Zeichens, BG-Zeichens oder CE-Zeichens.

*The present Test Certificate does n o t warrant the use of the GS-label, BG-label or CE-mark.*

Im übrigen gilt die Prüf- und Zertifizierungsordnung der Prüf- und Zertifizierungsstellen im BG-PRÜFZERT in Verbindung mit den Allgemeinen Geschäftsbedingungen der Deutschen Gesetzlichen Unfallversicherung e.V.

*In all other respects the Rules of Procedure for Testing and Certification carried out by the Test and Certification Bodies in BG-PRÜFZERT shall apply in conjunction with the General Business Conditions of the Deutsche Gesetzliche Unfallversicherung e.V.*

Für die Beurteilung:  
*For the assessment:*

Für die Prüfung:  
*For the testing:*



Dipl.-Ing. Hans-Ulrich Tobys

Fachzertifizierer(in)  
*Certification officer*



Christian Sollik

Leiter(in) des Prüflabors  
*Head of Testlaboratory*

## Prüfprotokoll Test protocol

1. **Prüfgrundlage:** DIN EN 60335-2-69:2008; IFA-Grundsätze zur Prüfung von Filtern für die Verwendung in staubbeseitigenden Maschinen und Geräten (Ausgabe 01/2010).
2. **Art der Prüfung:** Typprüfung
3. **Antragsteller:** TESTORI S.p.A
4. **Prüfmuster:** Filtermaterial
  - 4.1 Bauart: Filtermaterial 1-lagig
  - 4.2 Bezeichnung: TW 450SC
  - 4.3 Kennzeichnung: TW 450 SC
5. **Staubklasse:** "M "
6. **Herstellerangaben Filtermaterial**
  - 6.1 Material und Art: Polyester-Nadelfilz antistatisch
  - 6.2 Flächengewicht: 460 g/m<sup>2</sup>
  - 6.3 Luftdurchlässigkeit: 420 m<sup>3</sup>/m<sup>2</sup>·h bei 200 Pa
  - 6.4 Anströmseite: gekennzeichnete Seite
  - 6.5 Farbe: weiß, beidseitig kariert
7. **Durchlassgradprüfung Filtermaterial**
  - 7.1 Filterflächenbelastung: 360 m<sup>3</sup>/m<sup>2</sup>·h
  - 7.2 Anströmgeschwindigkeit: 0,10 m/s
  - 7.3 Anforderung Staubklasse "M"  
Maximal zulässiger Durchlassgrad: < 0,10 %



#### 7.4 Prüfergebnisse

Mittlerer Durchlassgrad: 0,04 % (sechs Messungen)

Standardabweichung: 0,02 %

Bei einer Filterflächenbelastung von  $360 \text{ m}^3/\text{m}^2 \cdot \text{h}$  entsprechend einer Filteranströmgeschwindigkeit von 0,10 m/s ist der Durchlassgrad sicher  $< 0,10 \%$  (s. Pkt. 5 der Grundsätze zur Prüfung).

Die Anforderungen an die Filtermaterialabscheideleistung der Staubklasse "M" werden erfüllt.

#### 8. Durchflusswiderstand

Der Durchflusswiderstand des Filtermaterials wird vor der Quarzstaubprüfung ermittelt.

8.1 Filterflächenbelastung:  $360 \text{ m}^3/\text{m}^2 \cdot \text{h}$

8.2 Anströmgeschwindigkeit: 0,10 m/s

#### 8.3 Prüfergebnis

Mittlerer Durchflusswiderstand: 190 Pa (6 Messungen)

9. **Luftdurchlässigkeitsprüfung:**  $380 \text{ m}^3/\text{m}^2 \cdot \text{h}$

Die Luftdurchlässigkeit des Filtermaterials wird bei einem Differenzdruck von 200 Pa vor der Quarzstaubprüfung ermittelt.

10. **Flächengewichtsprüfung:**  $450 \text{ g}/\text{m}^2$

#### 11. Kennzeichnung

Die Anforderungen werden erfüllt.

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Institut für Arbeitsschutz – IFA –  
Im Auftrag



Christian Sollik



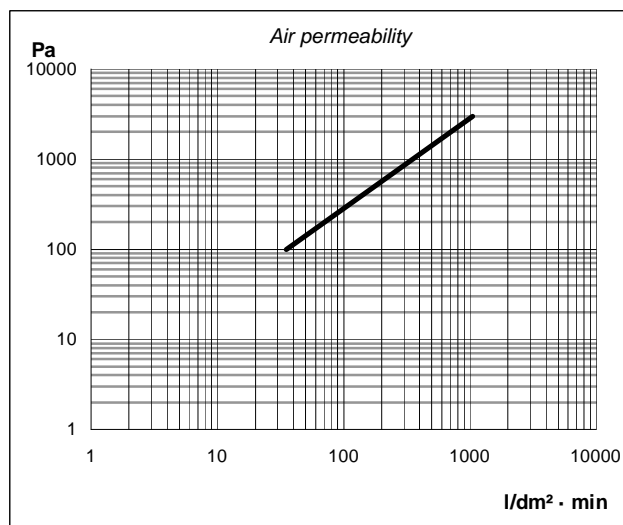
STYLE

**TW 450 SC****ANTISTATIC POLYESTER NEEDLEFELT**AREA WEIGHT *EN 12127* 460 g/m<sup>2</sup>DENSITY 0,46 g/cm<sup>3</sup>THICKNESS *EN ISO 9073/2* 1,00 mmPORE VOLUME 67 %FIBER POLYESTER

COMPOSITION

SCRIM POLYESTER/INOXFINISH HEAT SET - SURFACE GLAZING - CALENDERED**LONGITUDINAL****CROSS**BREAKING LOAD *EN 29073-3* 800 N1050 NBREAKING ELONGATION *EN 29073-3* 25 %49 %ELONGATION at 50 N *EN 29073-3* N.A. %N.A. %THERMAL STABILITY (SHRINKAGE) *UNI8279/12* 2 %1 %

air at 150°C - 2 h

BURST STRENGTH *DIN 53861* N.A. kPaN.A. psiAIR PERMEABILITY *EN ISO 9237*  
at 200 Pa 70 l/dm<sup>2</sup> • minSURFACE RESISTIVITY:  $\leq 10^5$  ohm (DIN 54345/1-5)**FIBER PROPERTIES: POLYESTER**OPERATING TEMPERATURE (Dry) CONTINUOUS  
PEAKS150°C Max160°C Max**CHEMICAL RESISTANCE**STRONG ACIDS ○○○○  
WEAK ACIDS ○○○○STRONG ALKALIS ○  
WEAK ALKALIS ○○SOLVENTS ○○○○  
OXIDIZING ○○○○  
HYDROLYSIS ○

LEGEND: ○○○○ Excellent ○○○ Good ○○ Fair ○ Poor

All data and characteristics are not binding and may vary depending on the constant improvements that Testori Spa reserves itself to introduce.  
Please contact Testori Spa before using these data for technical specification definition.





Sägetechnik & mehr  
für Aluminium und Stahl

Turnstraße 16  
73430 Aalen  
Telefon: 07361/92 47-38  
Telefax: 07361/92 47-39

AS Sägetechnik-Turnstr.16-73430 Aalen

Ivision SRL  
Via Mercadante 14

IT-47841 Cattolica

Datum: 05.08.2014

Liefertermin\* 18.09.2014

Zahlungsbedingungen: Netto 30 Tage

Preisstellung

Lieferanten-Nr. 70161

### Bestellung Nr.: 209717

\*Bei abweichenden oder sich verschiebenden Lieferterminen bitte wir Sie uns umgehend zu informieren.  
Wir bestellen unter unseren Einkaufsbedingungen, die Sie bei Nichtvorlage anfordern können.

Pos.	Menge	Einheit	Artikelbezeichnung	Einzelpreis	Gesamtpreis
1	1	Stück	Sauger V360-1,5KW-1200m <sup>3</sup> mit einer 100 mm Öffnung - 400 Volt inklusive Schalldämpfer und 38 Liter Behälter Gewicht 60 KG, fahrbar, mit ausklingbarem Spänebehälter auf Fahrrollen mit 38 Liter Fassungsvermögen, Filter 3 Mikron aus Polyester mit Filterreinigungseinrichtung, Motor 1,5 kW / 400 Volt / 50 Hz, Saugstutzen: 100 mm, Volumenstrom: 1200 m <sup>3</sup> /h, Düsenunderdruck: 25 mbar, mit Schalldämpfer ca.79 dB(A). Abmessungen BxTxH: 64x73x138 cm	1.187,55	1.187,55
2	1	Stück	Schlauchadapter von 100 mm auf 120 mm Anschlußstutzen	26,00	26,00
3	5	Meter	Saugschlauch 120 mm mit Schellen	11,70	58,50
4			Frachtkosten EU Land steuerfrei	100,00	100,00
5			Verpackungskosten EU Land	32,00	32,00
Gesamt Netto:				€ 1.404,05	
zzgl. 19,00 % Ust.				€ 0,00	
<b>Gesamtbetrag:</b>				<b>€ 1.404,05</b>	

#### Lieferadresse:

Klenk & Herrmann GmbH  
Schweißtechnik  
Rechbergstr. 3

73569 Eschach

Ust.-Id.-Nr.: DE174998303